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AFAPL-TR-76-59

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DESIGN OF A 1500 FT/SEC, TRANSONIC, HIGH-THROUGH-FLOW, SINGLE-STAGE AXIAL-FLOW COMPRESSOR WITH LOW HUB/TIP RATIO

COMPONENTS BRANCH
TURBINE ENGINE DIVISION

OCTOBER 1976

TECHNICAL REPORT AFAPL-TR-76-59
FINAL REPORT FOR PERIOD 1 APRIL 1971 - 31 JANUARY 1974

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This technical report has been reviewed and is approved for publication.

ARTHUR J. WENNERSTROM, GS-15
Chief, Compressor Research Group

FOR THE COMMANDER

JAMES L. RADLOFF, Major, USAF
Chief, Components Branch

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This report describes the aerodynamic design of a transonic axial-flow compressor inlet stage designed for a high flow rate per unit frontal area and relatively high aerodynamic loading. The performance objectives of this stage were derived from a preliminary design study of a multi-stage compressor for an advanced turbojet engine.

The design goals chosen included a tip speed of 1500 ft/sec, a flow rate of 39.7 lb/sec per square foot of frontal area, a stage total pressure ratio of

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1.91 and a stage isentropic efficiency of 0.83.

The techniques used in the preliminary and detail designs are described. The complete aerodynamic flow field pertaining to the design point is defined on twenty-one stream surfaces, and radial and meridional distributions of significant parameters are presented. Finally, the detailed flowpath geometry is defined and airfoil coordinates are included for both stream surfaces and cartesian manufacturing sections.

FOREWORD

This report describes the aerodynamic design of a transonic axial-flow compressor inlet stage. The work was performed in the Aerospace Research Laboratories and transferred to the Turbine Engine Division of the Air Force Aero-Propulsion Laboratory, Air Force Systems Command, Wright-Patterson AFB, Ohio. In both laboratories, it was accomplished under Project 7065, Task 13, Work Unit 27. The effort was conducted by Dr. Arthur J. Wennerstrom and Capt George R. Frost (ARL/LF, subsequently AFAPL/TBC) during the period April 1971 to February 1974.

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SECTION I

INTRODUCTION

This report describes the aerodynamic design of a transonic axial-flow compressor inlet stage designed for a high flow rate per unit frontal area and relatively high aerodynamic loading. The performance objectives of this stage were derived from a preliminary design study of a multi-stage compressor for an advanced turbojet engine. In the course of this study it became apparent that the most serious aerodynamic design problems of the overall compressor were associated with the first stage. Specifically, it was necessary to design the first stage with relatively high diffusion factors and stator hub Mach number in addition to high flow per unit frontal area in order to keep loading levels in the remaining stages within reason while maintaining a combustor inlet Mach number less than 0.4. The design criteria finally chosen for the first stage were felt to represent the best compromise from the standpoint of the overall multi-stage compressor. This stage was chosen as the object of an independent research program because it presses the present state-of-the-art with respect to nearly all of its design parameters. Also, it appeared to be a suitable test vehicle on which to assess the usefulness of several vortex generator configurations which have recently proven successful on a more highly loaded supersonic compressor stage.

The preliminary design is discussed in the second section of this report. The third section fully describes the detailed aerodynamic design assumptions and procedures. The final aerodynamic design results are presented in the fourth section. This includes a complete aerodynamic description of the compressor stage in addition to specification of the geometry.

SECTION II

PRELIMINARY DESIGN

1. CRITERIA

All of the criteria defining the basic parameters of this compressor stage resulted from the design goals of a hypothetical turbojet engine of which this compressor comprised the first stage. A flow per unit frontal area of 39.7 lb/sec per square foot was established at the outset as a design goal. A corrected tip speed for the first stage of 1500 ft/sec was also established early in the design study as the maximum value consistent with turbine stress considerations for this particular application. Most of the rest of the compressor characteristics resulted from the overall objective of designing a compressor for a turbojet engine with the minimum number of stages consistent with an overall isentropic efficiency of 0.84, a specified pressure ratio, and a combustor inlet Mach number less than 0.4. Further details concerning design criteria for the complete multi-stage compressor have been deliberately omitted from this report to avoid restrictions imposed by security classification.

2. PROCEDURE

The preliminary design of the multi-stage compressor was accomplished with the computer program described in Reference 1. This computer program performs an axisymmetric, full radial equilibrium analysis of the compressor flow field using the streamline curvature solution technique. Through a series of iterations, it attempts to maximize the performance of each successive stage by driving the design toward one or more of a number of specified limits and with a number of specified constraints. The radial distribution of energy addition in each rotor is specified by the user as a non-dimensional total pressure distribution. The aerodynamic parameters for which limits must be supplied for each stage are:

(1) Rotor tip diffusion factor
(2) Stator hub diffusion factor
(3) Stator hub Mach number
(4) Rotor hub relative exit angle
(5) Rotor tip exit whirl velocity

The first three of these limits were found most useful for this investigation. The fourth and fifth were simply set at values which would avoid constraining the results. The general procedure followed was to start by specifying relatively conservative values for these limits. This initially resulted in a design having insufficient pressure ratio and

higher efficiency than required within the maximum number of stages allowed. Subsequently, the controlling limits were gradually raised and some adjustments were made to the radial distributions of rotor work and mid-streamline axial velocity ratios until the desired overall pressure ratio was achieved at the objective efficiency and with what appeared to be a good balance of conditions throughout the compressor. In the first part of the preliminary design, the program option involving specified mid-streamline axial velocity ratios was employed and the annulus walls were allowed to float within limits. Final fine tuning of the preliminary design was accomplished with the annulus geometry frozen. A minor modification was made to the computer program for convenience in arriving at this design. This is described in Appendix A.

3. LOSS ASSUMPTIONS

The losses attributed to each blade element and expressed as a relative total pressure loss coefficient have been assumed to be equal to the sum of two components; one associated with diffusion occurring in the profile boundary layers and one related to the presence of shock waves in each blade passage. Shock losses were estimated according to the familiar Miller-Lewis-Hartmann model described in Reference 2. This consisted of assuming the shock-related portion of the relative total pressure loss coefficient to be that resulting from a normal shock, the upstream Mach number of which was equal to the arithmetic average of the relative inlet Mach number and the suction surface Mach number at the shock impingement point. This latter Mach number was assumed to differ from the relative inlet Mach number by a Prandtl-Meyer expansion through a specified number of degrees of turning. The previously mentioned modification (presented in Appendix I) to the computer program described in Reference 1 consisted of an option allowing the program user to specify the supersonic turning angle. This proved to be more convenient for this design exercise than other options available to accomplish the same purpose. The final version of the preliminary design assumed the supersonic turning angle to vary linearly from 12 degrees at the hub to 2 degrees at the tip for the rotor and assumed a constant 15 degrees for the stator. These assumptions were varied somewhat in the early stages of the preliminary design until the approximate blade geometry became evident. Where the Mach number relative to a blade element is less than one, the procedure was handled slightly differently in order to effect a smooth transition in the loss distribution. The suction surface Mach number was assumed to be that resulting from a Prandtl-Meyer expansion from Mach 1 through the given supersonic turning angle. Then, the upstream shock Mach number was assumed equal to

$$M_x = \frac{M_{1r}}{2} \quad (1 + Mss)$$

instead of the previously used average value. Whenever M_x was less than or equal to 1.0, shock loss was assumed to be zero.

Losses resulting from diffusion were predicted in the Lieblein manner by a relative total pressure loss parameter versus diffusion factor relationship. The computer program of Reference 1 allows this relationship to be defined at 10, 50 and 90 percent span, independently for each blade row. Initially curves taken from Figures 33 and 34 of Reference 3 were employed as representing the latest published revision of the original correlation. However, as the preliminary design began to take shape, the objective pressure ratio was achieved within the desired number of stages, but with efficiencies bordering the incredible, several points above the best ever obtained under similar or easier circumstances. Even greatly increasing the supersonic expansion angles to clearly impossible values did not bring the predicted efficiencies within the realm of credibility. A closer examination of the loss parameter correlation of Reference 3 led to the conclusion that the prediction shown for rotor profile loss appeared extremely optimistic for diffusion factors less than 0.5. representing essentially the entire range of interest for this design. The floor level of the loss parameter curves had been shown as approximately 0.002. For this design, this was raised to 0.009 and new curves were created which passed through the values given by Reference 3 at a diffusion factor of 0.7, and were extrapolated to 1.0 for the rotor, and retaining the prediction of Reference 3 for the stator, reasonable results were achieved. The distributions used are reproduced in Figures 1a and 1b of this report.

4. DESIGN PHILOSOPHY

a. Velocity Triangles

The choice of velocity triangles throughout the multistage compressor was most strongly influenced by the desire to achieve the maximum pressure ratio per stage consistent with reasonable off-design performance and the design efficiency objective. Since all rotors were expected to operate at relatively high levels of diffusion, high rotor relative Mach numbers and the associated shock losses were viewed as an acceptable penalty for the resulting performance. Although variable inlet guide vanes (IGV) might be desirable to expand the part-speed operating envelope, they were not desired from the point of view of altering the relative inlet Mach number of the first rotor, nor could significantly cambered IGV be tolerated at design point operation because of the high flow rate and resultant danger of choking. Consequently, a design approach was adopted which employed no IGV, assumed that the first stage stator would be a rigid structure supporting the front bearing and transmitting services,

and assumed that satisfactory off-design performance could be obtained by variable stators in the second and later stages, and an articulated trailing edge in the first stator and/or bleeds if necessary. Furthermore, all stators were designed to turn the flow back to the axial direction.

b. Axial Velocity Ratio

Three factors guided the magnitude and distribution of axial velocity ratios selected for each blade row. First, the entire multi-stage compressor required an overall axial velocity ratio less than unity in order that the combustor inlet Mach number not exceed 0.40, one of the initial conditions. Rather than force just one or two stages to accept a particularly low axial velocity ratio, it was decided to allow the stage axial velocity ratios to gradually decline over the first few stages and then remain approximately constant over the balance of stages. A mid-streamline axial velocity ratio of approximately 0.98 was chosen for the first stage. The second two factors determined the distribution of axial velocity ratio between rotor and stator. Rotors have generally proven capabl of operating at higher loading levels than stators havir [illegible] losses. This favored axial velocity ratios less than unity in rotors and greater than unity in stators. Also, as the axial velocity ratio across a rotor is reduced, the camber required to produce a given change in swirl velocity is also reduced. Consequently, since average rotor relative Mach numbers were much higher than average stator Mach numbers, low rotor axial velocity ratios tended to minimize supersonic turning angles, and consequently shock losses for a given level of solidity. The mid-streamline values ultimately arrived at for the first stage were 0.815 for the rotor and 1.206 for the stator.

c. Annulus Shape

The shape chosen for the compressor annulus represented a compromise between maintaining high enough blade speed to facilitate obtaining high pressure ratio per stage while at the same time not permitting the hub/tip radius ratio at the compressor exit to become too high. There were also mechanical considerations involved such as ease of maintaining tip clearance and stresses in the last rotor. The shape ultimately chosen incorporated a constant outer diameter over the first three blade rows. The outer diameter was then reduced somewhat across each stator starting with the second stage. All rotors downstream of the second maintained a cylindrical outer diameter for ease in controlling tip clearance, although these diameters were progressively reduced. This choice of contour produced an adverse aerodynamic condition with respect to the effects of streamline curvature on aerodynamic loading. However, this

aerodynamic effect had such small impact on loading levels and losses that it was considered a desirable trade-off against better control of tip clearance.

d. Aspect Ratio

The choice of aspect ratio was governed by four factors, not all of which were always important in any one stage. In the first stage, the most important factors were hub ramp angle, mechanical stresses, and aerodynamic stability. High aspect ratio tended to minimize stage weight and rotor root stresses but tended toward steep hub ramp angles, greater flutter sensitivity necessitating part-span dampers, and less stall margin. Lower aspect ratio improved these last three conditions at some sacrifice in the first two, but if carried too far, could lead to unacceptable rotor root stresses due to increasingly acute angles between rotor blade and hub near the trailing edge. Downstream of the first stage, ramp angle and blade stresses became progressively less important and a fourth factor, manufacturing cost, became more important. Lower cost favored lower aspect ratio in later stages. The computer program of Reference 1 employed an aspect ratio based upon the ratio of leading-edge span to the axial depth of a blade row. Using this definition, a value of 2.0 was selected for the first rotor, which resulted in an initial hub ramp angle of approximately 30 degrees and appeared to offer reasonable prospects of not requiring mid-span dampers. The aspect ratio of each of the next several blade rows was chosen strictly on the basis of adjusting the axial length of each blade row such that the hub ramp angle declined monotonically and smoothly from the inlet value to nearly zero. An aspect ratio of 1.0 was chosen for the last few blade rows as representative of the minimum value offering an acceptable ratio of blade span to circumferential spacing.

5. RESULTS

The final results of the preliminary design pertaining to the first compressor stage and its immediate environment are shown in the following pages of computer printout. The information presented is sufficiently complete that, with the aid of Reference 1 and the associated computer program (available from COSMIC), anyone so inclined should be able to duplicate the results.

One of the input requirements of this computer program was a nondimensional spanwise total pressure distribution in the exit plane of each rotor. For the first few design iterations, total pressure leaving each rotor was assumed constant as a matter of convenience. As soon as the design began to evolve, however, it became necessary to increase the total pressure leaving the hub of each of the first few rotors in order to compensate for stator hub losses and to obtain a reasonable

balance of conditions throughout the compressor.

The diffusion factor at the rotor tip proved to be the limiting parameter in the first stage. This reached the specified limit of 0.52. The resulting Mach number relative to the stator hub was barely supersonic at about 1.02 and dropped rapidly with increasing radius. The stator hub diffusion factor was somewhat high at about 0.55, but the predicted losses were acceptable and this appeared to be a necessary compromise for the benefit of subsequent stages downstream. The mid-streamline axial velocity ratio of 0.815 across the first rotor kept the relative turning angle across the rotor tip down to 2.4 degrees. This was thought to offer good prospects of minimizing rotor shock losses and deviation angles. The solidity variation in the first rotor assumed for the preliminary design (a linear variation from approximately 2.0 at the hub to 1.3 at the tip) proved eventually to be somewhat low. This solidity was increaesed during the detail design procedure discussed later in this report.

The performance predicted for the first stage was a total pressure ratio of 1.93 at an isentropic efficiency of about 84 percent. Reducing the aerodynamic loading would have led to slightly higher efficiency and substantially less design risk in this stage. However, it would have required higher loading in downstream stages and/or a higher discharge Mach number from the last stage, neither one of which was viewed as desirable from an engine design standpoint.

A matter of practical interest to users of the computer program associated with Reference 1 concerns the tolerances applied to portions of the iteration scheme. Most of the tolerances recommended in Reference 1 were found satisfactory. However, for this design, much less difficulty was experienced with the program when the loading limit tolerance was increased from the recommended 0.01 to 0.033.

```
*****----*** ADVANCED MULTISTAGE AXIAL-FLOW COMPRESSOR ***---****
**---** ANALYSIS AT DESIGN CONDITIONS **--**

----I N P U T   D A T A----

THE MACHINE IS TO HAVE NO MORE THAN    STAGES              A TOTAL PRESSURE RATIO OF        IS DESIRED
CALCULATIONS ARE TO BE PERFORMED AT 11 STREAMLINES          THE INLET TOTAL PRESSURE IS    14.70 LBS/SQ IN.
THE INLET MASS FLOW RATE IS  62.60 LB/SEC                   THE INLET TOTAL TEMPERATURE IS 518.69 DEG. R
MOLECULAR WEIGHT OF THE FLUID IS  28.97                     THE TIP SPEED IS 1500.0 FT./SEC.
AXIAL VELOCITY TOLERANCE IS  .0100                          THE LOADING LIMIT TOLERANCE IS  .0330
THE EFFICIENCY TOLERANCE IS  .0100                          THE CONTINUITY TOLERANCE IS  .0005
THE FRACTION OF THE TOTAL MASS FLOW BETWEEN THE HUB AND THE J-TH STREAMLINE IS.
  0.000   .100   .200   .300   .400   .500   .600   .700   .800   .900  1.000

THE INLET GUIDE VANE LOSS COEFFICIENTS FOR THE 11 STREAMLINES ARE (FROM HUB TO TIP)
  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000

THE INLET GUIDE VANE EXIT TANGENTIAL VELOCITY IS SPECIFIED BY
A =   0.             B =   0.           C =   0.           D =   0.           E =   0.

                THE SPECIFIC HEAT POLYNOMIAL IS IN THE FOLLOWING FORM
CP =  .23747E+00 +   .21962E-04*T +  -.87791E-07*T**2 +   .13991E-09*T**3 +  -.78056E-13*T**4 +   .15043E-16*T**5

THE RATIO OF THE AREAS OF THE LAST 3 STATIONS TO THE AREA OF THE LAST STATOR EXIT ARE 1.0000. 1.0000. 1.0000 .
```

----FLOW PATH DESCRIPTION----

STATION NO.	AXIAL COORDINATE (IN.)	HUB RADIUS (IN.)	HUB BLOCKAGE FACTOR	TIP RADIUS (IN.)	TIP BLOCKAGE FACTOR
1	-12.000	1.000	1.000	8.500	1.000
2	-9.000	1.000	1.000	8.500	1.000
3	-6.000	1.600	1.000	8.500	1.000
4	-3.000	2.300	1.000	8.500	1.000
5	0.000	3.000	.995	8.500	.995
6	2.750	4.571	.992	8.500	.992
7	5.215	5.736	.990	8.500	.990
8	7.057	6.258	.987	8.500	.987

.... LOSS DATA SET NUMBER 1 ....

D-FACTOR	AT 10 PERCENT	AT 50 PERCENT	AT 90 PERCENT	(OF BLADE HEIGHT FROM THE GEOMETRIC HUB.)
0.000	.0090	.0090	.0090	
.100	.0090	.0090	.0090	
.150	.0090	.0090	.0090	
.200	.0090	.0090	.0090	
.250	.0090	.0090	.0090	
.300	.0090	.0090	.0093	
.350	.0090	.0090	.0098	
.400	.0092	.0090	.0110	
.450	.0100	.0090	.0130	
.500	.0120	.0093	.0160	
.550	.0140	.0105	.0200	
.600	.0180	.0120	.0270	
.650	.0240	.0155	.0368	
.700	.0325	.0199	.0480	
.750	.0430	.0284	.0605	
.800	.0528	.0380	.0745	
.850	.0630	.0495	.0890	
.900	.0739	.0610	.1045	
.950	.0845	.0718	.1190	
1.000	.0960	.0826	.1350	

.... LOSS DATA SET NUMBER 2 ....

D-FACTOR	AT 10 PERCENT	AT 50 PERCENT	AT 90 PERCENT (OF BLADE HEIGHT FROM THE GEOMETRIC HUB.)
0.000	.0120	.0040	.0120
.100	.0137	.0052	.0137
.150	.0149	.0060	.0149
.200	.0160	.0067	.0160
.250	.0175	.0075	.0175
.300	.0195	.0082	.0195
.350	.0215	.0100	.0215
.400	.0233	.0112	.0233
.450	.0265	.0128	.0265
.500	.0310	.0156	.0310
.550	.0361	.0202	.0361
.600	.0421	.0255	.0421
.650	.0500	.0320	.0500
.700	.0600	.0400	.0600
.750	.0720	.0481	.0720
.800	.0870	.0589	.0870
.850	.1040	.0718	.1040
.900	.1220	.0853	.1220
.950	.1398	.1050	.1398
1.000	.1565	.1155	.1565

----STATION NUMBER 1 ----

S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	1.0000	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
2	2.6504	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
3	3.9051	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
4	4.7302	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
5	5.4314	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
6	6.0519	.569	615.84	515.84	0.0000	0.00	0.00000	0.0
7	6.6144	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
8	7.1327	.569	615.84	615.84	0.0000	0.00	0.00000	0.0
9	7.6158	.569	615.84	615.84	0.0000	C.00	0.00000	0.0
10	8.0700	.569	615.84	515.84	0.0000	0.00	0.00000	0.0
11	8.5000	.569	615.84	615.84	0.0000	0.00	0.00000	0.0

S.L. NO.	STREAMLINE RADIUS (IN.)	TOTAL PRES. (LB/SQ IN.)	TOTAL TEMP. (DEGREES)
1	1.0000	14.70	518.69
2	2.6504	14.70	518.69
3	3.9051	14.70	518.69
4	4.7302	14.70	518.69
5	5.4314	14.70	518.69
6	6.0519	14.70	518.69
7	6.6144	14.70	518.69
8	7.1327	14.70	518.69
9	7.6158	14.70	518.69
10	8.0700	14.70	518.69
11	8.5000	14.70	518.69

----STATION NUMBER 2 ----

S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	1.0000	.524	569.58	556.75	56.6753	5.71	.06568	0.0
2	2.8879	.553	599.49	598.85	27.5286	2.63	.02226	0.0
3	3.9441	.563	609.27	608.93	20.1645	1.90	.01339	0.0
4	4.7657	.568	614.86	614.66	15.6371	1.46	.00907	0.0
5	5.4618	.572	618.49	618.37	12.2314	1.13	.00642	0.0
6	6.0766	.574	620.95	620.87	9.4452	.87	.00461	0.0
7	6.6337	.576	622.63	622.59	7.0666	.65	.00326	0.0
8	7.1467	.577	623.75	623.73	4.9866	.46	.00222	0.0
9	7.6247	.578	624.45	624.44	3.1409	.29	.00136	0.0
10	8.0743	.578	624.82	624.82	1.4883	.14	.00063	0.0
11	8.5000	.578	624.93	624.93	-.0000	-.00	-.00000	0.0

S.L. NO.	STREAMLINE RADIUS (IN.)	TOTAL PRES. (LB/SQ IN.)	TOTAL TEMP. (DEGREES)
1	1.0000	14.70	518.69
2	2.8879	14.70	518.69
3	3.9441	14.70	518.69
4	4.7657	14.70	518.69
5	5.4618	14.70	518.69

S.L. NO.	STREAMLINE RADIUS (IN.)	TOTAL PRES. (LB/SQ IN.)	TOTAL TEMP. (DEGREES)
6	6.0760	14.70	518.69
7	6.6337	14.70	518.69
8	7.1467	14.70	518.69
9	7.6267	14.70	518.69
10	8.0743	14.70	518.69
11	8.5000	14.70	518.69

----STATION NUMBER 3 ----

S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	1.6000	.555	602.04	588.39	127.4835	12.23	.01037	0.0
2	3.1263	.575	621.55	618.15	64.9844	6.00	.01680	0.0
3	4.1038	.584	631.08	629.37	46.4543	4.23	.01370	0.0
4	4.8829	.590	636.95	635.97	35.3277	3.19	.01104	0.0
5	5.5581	.594	640.85	640.27	27.2191	2.44	.00880	0.0
6	6.1431	.596	643.51	643.18	20.7769	1.86	.00686	0.0
7	6.6825	.598	645.31	645.13	15.4098	1.37	.00516	0.0
8	7.1886	.599	646.48	646.39	10.8863	.96	.00365	0.0
8	7.1886	.599	646.48	646.39	10.8863	.96	.00365	0.0
9	7.6460	.600	647.16	647.12	6.7796	.60	.00231	0.0
10	8.0843	.600	647.46	647.45	3.2870	.29	.00110	0.0
11	8.5000	.600	647.45	647.45	-.0000	-.00	.00000	0.0

S.L. NO.	STREAMLINE RADIUS (IN.)	TOTAL PRES. (LB/SQ IN.)	TOTAL TEMP. (DEGREES)
1	1.6000	14.70	518.69
2	3.1263	14.70	518.69
3	4.1038	14.70	518.69
4	4.8829	14.70	518.69
5	5.5581	14.70	518.69
6	6.1431	14.70	518.69
7	6.6825	14.70	518.69
8	7.1886	14.70	518.69
9	7.6460	14.70	518.69
10	8.0843	14.70	518.69
11	8.5000	14.70	518.69

----STATION NUMBER 4 ----

S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEGS)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	2.3000	.573	620.04	602.64	145.8631	13.61	.00533	0.0
2	3.5184	.601	648.39	641.52	94.1580	8.35	.01037	0.0
3	4.3970	.620	666.91	663.11	71.0608	6.12	.00822	0.0
4	5.0999	.632	679.21	676.95	55.2985	4.67	.00617	0.0
5	5.7177	.640	687.55	686.21	42.9674	3.58	.00447	0.0
6	6.2714	.646	693.17	692.40	32.7476	2.71	.00304	0.0
7	6.7777	.650	696.84	696.42	23.9839	1.97	.00181	0.0
8	7.2475	.652	699.06	698.87	16.3110	1.34	.00071	0.0
9	7.6879	.653	700.23	700.17	9.4956	.78	-.00020	0.0
10	8.1042	.654	700.65	700.64	3.3752	.28	-.00121	0.0
11	8.5000	.654	700.60	700.60	-2.1746	-.18	-.00207	0.0

S.L. NO.	STREAMLINE RADIUS (IN.)	TOTAL PRES. (LB/SQ IN.)	TOTAL TEMP. (DEGREES)
1	2.3000	14.70	518.69
2	3.5184	14.70	518.69

3	4.3878	14.70	518.69
4	5.0999	14.70	518.69
5	5.7177	14.70	518.69
6	6.2714	14.70	518.69
7	6.7777	14.70	518.69
8	7.2475	14.70	518.69
9	7.6879	14.70	518.69
10	8.1042	14.70	518.69
11	8.5000	14.70	518.69

----STATION NUMBER 5 ---- (INLET GUIDE VANE EXIT)

S.L. NO.	STREAMLINE RADIUS (IN.)	ABS. MACH NUMBER	ABS. VEL. (FT/SEC)	AXIAL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	STREAMLINE SLOPE (DEG)	STREAMLINE CURVATURE 1/IN.	FLOW ANGLE (DEGREES)
1	3.0523	.677	723.71	671.33	270.3106	21.93	.08818	0.0
2	4.0069	.706	751.51	722.50	206.7821	15.98	.07980	0.0
3	4.7470	.726	770.83	753.45	162.7750	12.20	.06551	0.0
4	5.3730	.740	784.37	773.94	127.4649	9.36	.05154	0.0
5	5.9259	.750	793.96	787.91	97.7901	7.08	.03895	0.0
6	6.4270	.757	800.73	797.44	72.4586	5.19	.02800	0.0
7	6.8892	.762	805.41	803.81	50.7927	3.61	.01877	0.0
8	7.3208	.765	808.52	807.87	32.4098	2.29	.01132	0.0
9	7.7274	.767	810.44	810.26	17.1496	1.21	.00574	0.0
10	8.1132	.768	811.47	811.45	5.0470	.35	.00226	0.0
11	8.4814	.769	811.84	811.83	-3.4173	-.24	.00145	0.0

S.L. NO.	STREAMLINE RADIUS (IN.)	TOTAL PRES. (LB/SQ IN.)	TOTAL TEMP. (DEGREES)	REL. VEL. (FT/SEC)	WHIRL VEL. (FT/SEC)	RELATIVE MACH NO.	REL. FLOW ANG.(DEG)	WHEEL SPEED (FT/SEC)
1	3.0523	14.70	518.69	902.15	0.00	.844	36.659	538.633
2	4.0069	14.70	518.69	1031.87	0.00	.969	43.256	707.106
3	4.7470	14.70	518.69	1138.40	0.00	1.072	47.381	837.714
4	5.3730	14.70	518.69	1230.56	0.00	1.161	50.401	948.182
5	5.9259	14.70	518.69	1312.99	0.00	1.240	52.793	1045.746
6	6.4270	14.70	518.69	1388.36	0.00	1.313	54.778	1134.182
7	6.8892	14.70	518.69	1458.33	0.00	1.380	56.476	1215.744
8	7.3208	14.70	518.69	1524.04	0.00	1.442	57.960	1291.898
9	7.7274	14.70	518.69	1586.31	0.00	1.502	59.276	1363.656
10	8.1132	14.70	518.69	1645.71	0.00	1.558	60.457	1431.746
11	8.4814	14.70	518.69	1702.71	0.00	1.612	61.524	1496.714

ITERATION ON LOADING HAS TAKING PLACE

--- FINAL FLOW PARAMETERS FOR STAGE NUMBER 1 ***---***

*** STAGE INPUT PARAMETERS ***

ROTOR TIP D-FACTOR LIMIT	.5200
HUB RELATIVE FLOW ANGLE LIMIT AT THE ROTOR EXIT	-10.0
STATOR HUB MACH NUMBER LIMIT (IN)	1.0500
STATOR HUB D-FACTOR LIMIT	.6000
MAXIMUM TIP TANGENTIAL VELOCITY	800.0

	---ROTOR---				---STATOR---		
	PRESSURE PROFILE	DELTA B, IN-LET TO SHOCK	SOLIDITY		WHIRL VELOCITY	DELTA B, IN-LET TO SHOCK	SOLIDITY
A	0.	0.	0.	A	0.	0.	0.
B	.100000E+01	.100000E+01	.100000E+01	B	.100000E+01	.100000E+01	.100000E+01
C	.100000E+01	.120000E+02	.200000E+01	C	0.	.150000E+02	.180000E+01
D	-.120000E+00	-.100000E+02	-.700000E+00	D	0.	0.	-.200000E+00
E	.400000E-01	0.	0.	E	0.	0.	0.

*** STAGE SCALER QUANTITIES ***

	ASPECT RATIO	GEOMETRIC HUB RADIUS (IN.)	GEOMETRIC TIP RAD.(IN.)	HUB RAMP ANGLE (DEG)	TIP RAMP ANGLE (DEG)	AXIAL LENGTH (IN.)	MASS FLOW (LB/SEC)	MASS AVE. ADIABATIC EFF.
-ROTOR--	2.608	4.5705	8.5000	29.738	0.000	2.7500	62.6000	.8753
-STATOR-	1.594	5.7361	6.5400	25.308	0.000	2.4650	62.6000	.8444

	VEL. RATIO AT THE MEAN	HUB BLOCKAGE FACTOR	TIP BLOCKAGE FACTOR	MASS AVE. PR. RATIO	MASS AVE. TEMP. RATIO	CUMULATIVE MASS AVE. PR. RATIO	CUMULATIVE MASS AVE. TEMP. RATIO	CUMULATIVE MASS AVE. ADIABATIC EFF.
-ROTOR--	.815	.9920	.9920	1.9717	1.2443	1.9717	1.2443	.8753
-STATOR-	1.006	.9900	.9900	1.9291	1.2443	1.9291	1.2443	.8444

	LOSS DATA SET USED
-ROTOR--	1
-STATOR-	2

------ R O T O R   E X I T **------**

S.L. NO.	STREAMLINE RADIUS (IN.)	AXIAL VEL. (FT/SEC)	WHIRL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	ABS. VEL. (FT/SEC)	ABS. MACH NUMBER	ABS. FLOW ANGLE (DEG)	REL. FLOW ANGLE (DEG)
1	4.6152	635.235	896.97	331.09	1147.989	1.0164	51.383	-6.571
2	5.1648	654.875	793.79	263.87	1062.355	.9281	48.349	9.459
3	5.6310	663.888	725.30	211.50	1005.225	.8798	46.181	21.889
4	6.0476	664.237	675.99	168.38	962.630	.8286	44.606	29.720
5	6.4318	659.566	648.82	131.72	928.996	.7953	43.615	36.307
6	6.7938	650.285	615.81	100.29	901.192	.7674	43.184	41.548
7	7.1407	637.395	598.46	73.25	877.380	.7432	43.008	45.883
8	7.4776	628.757	587.92	49.98	856.437	.7214	43.351	49.597
9	7.8083	599.640	583.67	30.05	837.516	.7011	44.180	52.907
10	8.1394	573.451	585.98	13.25	819.993	.6815	45.611	55.999
11	8.4758	536.177	598.51	-.47	803.558	.6619	48.145	59.137

S.L. NO.	TOTAL TEMP. RATIO	TOTAL PRES. RATIO	ADIABATIC EFFICIENCY	DIFFUSION FACTOR	WHEEL SPEED (FT/SEC)	SOLIDITY	A*/S	LOSS COEFF.
1	1.2343	2.0666	.9830	.3734	814.45	1.993	.7848	.0366
2	1.2320	2.0362	.9702	.4581	911.43	1.881	.7319	.0510
3	1.2311	2.0127	.9564	.4842	993.70	1.792	.6832	.0634
4	1.2313	1.9936	.9411	.4987	1067.23	1.714	.6388	.0758
5	1.2332	1.9775	.9214	.4928	1135.02	1.645	.5994	.0920
6	1.2367	1.9636	.8974	.4923	1198.91	1.581	.5643	.1115
7	1.2418	1.9516	.8698	.4929	1260.13	1.520	.5324	.1336
8	1.2487	1.9411	.8380	.4952	1319.58	1.463	.5035	.1591
9	1.2579	1.9316	.8019	.4996	1378.05	1.409	.4774	.1888
10	1.2698	1.9236	.7689	.5070	1436.36	1.355	.4533	.2239
11	1.2869	1.9164	.7189	.5212	1495.73	1.303	.4313	.2704

S.L. NO.	TOTAL TEMP. (DEGREES)	TOTAL PRES. (LB/SQ IN.)	STATIC TEMP. (DEGREES)	STATIC PRES. (LB/SQ IN.)	SLOPE (DEGREES)	CURVATURE 1/IN.	REL. VEL. (FT/SEC)	REL. MACH NUMBER
1	640.20	30.38	530.64	15.74	27.53	-.02668	721.0755	.6385
2	639.03	29.93	545.21	17.16	21.95	-.01170	715.7696	.6253
3	638.57	29.59	554.53	18.85	17.69	-.00170	745.9625	.6462
4	638.69	29.31	561.68	18.68	14.22	.00605	789.1521	.6793
5	639.67	29.07	567.96	19.16	11.30	.01208	834.6274	.7145
6	641.48	28.87	574.01	19.55	8.77	.01635	879.1716	.7487
7	644.11	28.69	580.17	19.88	6.56	.01869	921.6543	.7807
8	647.70	28.53	586.79	20.18	4.60	.01888	960.8131	.8093
9	652.43	28.40	594.20	20.46	2.87	.01654	995.8876	.8337
10	658.63	28.28	602.82	20.72	1.32	.01102	1025.7574	.8526
11	667.50	28.17	613.94	21.00	-.65	.00894	1045.2178	.8609

****-----** S T A T O R   E X I T **-----****

S.L. NO.	STREAMLINE RADIUS (IN.)	AXIAL VEL. (FT/SEC)	WHIRL VEL. (FT/SEC)	RADIAL VEL. (FT/SEC)	ABS. VEL. (FT/SEC)	ABS. MACH NUMBER	ABS. FLOW ANGLE (DEG)	REL. FLOW ANGLE (DEG)
1	5.7703	716.150	.17	279.55	770.640	.6469	.013	52.877
2	6.1084	775.594	.16	246.25	813.662	.6870	.012	52.950
3	6.4107	790.267	.16	207.20	816.976	.6903	.011	54.161
4	6.6950	791.913	.15	172.03	810.383	.6841	.011	55.550
5	6.9676	789.081	.14	141.20	801.614	.6755	.010	56.895
6	7.2315	784.213	.14	113.61	792.399	.6660	.010	58.160
7	7.4887	778.261	.13	88.33	783.238	.6562	.010	59.343
8	7.7407	771.635	.13	64.72	774.345	.6462	.010	60.450
9	7.9887	764.633	.13	42.29	765.882	.6360	.009	61.487
10	8.2337	757.543	.12	20.72	757.826	.6257	.009	62.454
11	8.4768	751.060	.12	-.20	751.060	.6153	.009	63.338

S.L. NO.	TOTAL TEMP. RATIO	TOTAL PRES. RATIO	ADIABATIC EFFICIENCY	DIFFUSION FACTOR	WHEEL SPEED (FT/SEC)	SOLIDITY	A*/S	LOSS COEFF.
1	1.0000	.9024	.6313	.5458	1018.29	1.798	.6384	.2025
2	1.0000	.9559	.9026	.4450	1077.95	1.771	.6670	.1034
3	1.0000	.9756	.9196	.3935	1131.29	1.748	.6837	.0620
4	1.0000	.9845	.9176	.3613	1181.47	1.727	.6933	.0429
5	1.0000	.9885	.9042	.3398	1229.57	1.708	.6960	.0337
6	1.0000	.9900	.8828	.3229	1276.14	1.689	.6932	.0309
7	1.0000	.9899	.8553	.3113	1321.54	1.671	.6856	.0330
8	1.0000	.9885	.8219	.3034	1366.01	1.653	.6735	.0394
9	1.0000	.9861	.7832	.2985	1409.78	1.636	.6557	.0496
10	1.0000	.9831	.7392	.2965	1453.01	1.619	.6310	.0632
11	1.0000	.9796	.6862	.2979	1495.91	1.601	.5931	.0803

S.L. NO.	TOTAL TEMP. (DEGREES)	TOTAL PRES. (LB/SQ IN.)	STATIC TEMP. (DEGREES)	STATIC PRES. (LB/SQ IN.)	SLOPE (DEGREES)	CURVATURE 1/IN.	REL. VEL. (FT/SEC)	REL. MACH NUMBER
1	640.28	27.41	590.87	20.69	21.27	-.06970	1276.8881	1.0719
2	639.03	28.61	584.06	20.87	17.62	-.06130	1350.4360	1.1402
3	638.57	28.67	583.13	21.00	14.70	-.05310	1395.3235	1.1790
4	638.69	28.85	584.14	21.09	12.26	-.04590	1432.5621	1.2094
5	639.67	28.74	585.29	21.17	10.15	-.03971	1467.5760	1.2368
6	641.48	28.58	589.34	21.23	8.25	-.03430	1502.0275	1.2625
7	644.11	28.40	593.17	21.27	6.48	-.02937	1536.0904	1.2870
8	647.78	28.20	597.92	21.30	4.80	-.02449	1570.1102	1.3103
9	652.43	28.00	603.75	21.33	3.17	-.01899	1604.2342	1.3323
10	658.63	27.80	610.97	21.36	1.57	-.01181	1638.6572	1.3529
11	667.50	27.60	620.71	21.38	-.02	-.00074	1673.7638	1.3712

SECTION III

DETAILED AERODYNAMIC DESIGN

1. COMPUTATIONAL METHOD

The detailed aerodynamic design of the first compressor stage was accomplished with an early version of the computer program described in Reference 4, and employing the "streamline curvature" method of computation. Although conceptually similar to the method employed for the preliminary design, much greater precision was incorporated into the detail design by the addition of many more axially-distributed computing stations to define the flow path, including four stations within the interior of each blade row. The detail design program permitted the use of curvilinear computing stations, and these were adjusted periodically to insure a high degree of coincidence with blade-row edges. Twenty-one streamlines were employed for the detail design in contrast to the eleven employed for the preliminary design.

A solution was obtained through an iterative numerical procedure according to which the equations of momentum, continuity, and energy are simultaneously solved at each computing station in sequence throughout the compressor. After each "pass" through the compressor, the streamline geometry is updated and the procedure is repeated until the changes occurring from one pass to the next fall within a specified tolerance, whereupon the solution is considered to be "converged." The most significant assumptions are that the flow is axisymmetric and can be described by a series of concentric streamsurfaces across which no mass or momentum is transferred. Within this framework, the "full" radial equilibrium version of the momentum equation is satisfied at each streamsurface/computing-station intersection whereby effects of streamline curvature and entropy gradients are included. For the computations made within a blade row, blade force terms are included in the momentum equation in the form of a body-force field assumed to act in a direction everywhere normal to the three-dimensional surface formed by the stacked camber lines of each blade row. A correction for the meridional entropy gradient was included according to Reference 5.

An allowance for boundary layer blockage was incorporated to account for boundary layer development on both blades and annulus walls. The absolute value of blockage was estimated according to a simplified formula for a turbulent boundary layer on a flat plate, with meridional velocity and length substituted for absolute velocity and path length. The method used is substantially as described in Reference 6 and, although relatively crude, it has produced reliable results

under a variety of circumstances. The resulting total blockage calculated at each computing station is linearly distributed from hub to tip as a function of radius and is introduced as a factor in the continuity equation. Within the interior of blade rows, the additional blockage resulting from the finite thickness of the airfoils is also taken into account.

2. AIRFOIL SELECTION AND OPTIMIZATION

When a design is accomplished involving computing stations internal to a blade row, some optimization criteria must be specified according to which the most efficient airfoil geometry can be selected from among a variety of possible designs satisfying the same end conditions. The axial distribution of static pressure along each streamsurface, as computed by the axisymmetric flow analysis, was selected as the most appropriate parameter to optimize for this design. This was chosen on the basis of being the parameter most closely related to blade surface boundary layer behavior which could be calculated with some degree of accuracy. The minimum static pressure gradient along each streamsurface would obviously occur with a linear variation between leading and trailing edge. Since this condition could probably not be realized in practice, high deviation angles and losses would be the probable result. The "optimum" axial distribution of (circumferentially averaged) static pressure along each streamsurface has been defined as one which is approximately linear over the first three quarters of a blade row and then declines smoothly to nearly zero at the trailing edge in deference to the Kutta condition.

Two basic design approaches are feasible in conjunction with the optimization criteria described above. In the more traditional approach, one can assume the blade geometry, solving for the equilibrium flow field using specified relative flow angles as input to the aerodynamic program. In this design approach, the parameters defining the blade geometry are adjusted through a series of iterations until the optimization criteria are achieved over as much of the blade surface as possible. This technique has two shortcomings. First, one does not have infinite flexibility to adjust the shape of blades of a specific geometric family, so the optimization criteria can rarely, if ever, be achieved over the full span of a blade. Second, the use of specified relative flow angles as input to the streamline-curvature-type aerodynamic analysis program can lead to numerical instabilities and convergence difficulties in the calculation procedure at high subsonic through-flow Mach numbers. The design approach using arbitrary airfoils avoids both of these difficulties and was chosen for this design. Using this technique, the designer must assume the work distribution (total temperature or enthalpy) along streamlines through the

rotor and the swirl velocity (or preferably radius times swirl velocity) distribution along streamlines through the stator. The aerodynamic flow field analysis then produces a set of relative flow angles to which airfoils must be matched. The technique and computer program described in Reference 7 were developed for this purpose. This procedure is iteratively repeated until the optimization criteria are met over the full span, airfoil metal blockages used in the aerodynamic analysis are mutually consistent with those calculated by the blade generation program, and the computing stations used to represent blade leading and trailing edges are a close match to the envelope of the stacked airfoils. In pursuing such a design approach, it is absolutely essential to insure that the distributions of work through rotors and radius-times-swirl-velocity through stators vary smoothly both along streamlines as well as along computing stations. Any lack of smoothness in these distributions will be directly translated into peculiarly shaped airfoils having undesirable mechanical and probably undesirable aerodynamic properties. A point of practical interest to designers is that linear distributions of these variables along streamlines provide an excellent starting point for a design. The adjustments away from the linear distribution required to achieve the optimization criteria are usually not very large.

3. INTRA-BLADE AERODYNAMIC ASSUMPTIONS

In conjunction with a through-the-blade-row design technique such as described above, some assumption must be made for three critical meridional distributions within each blade row. These are deviation angle, blockage, and losses, listed in decreasing order of importance. At high relative flow angles such as encountered near the tip of a high-speed rotor, the performance is extremely sensitive to changes in relative flow angle. There is virtually no experimental data available to define a reliable correlation applicable to the interior region of a compressor blade row. Furthermore, few if any reliable analytical techniques are currently available to predict circumferential average relative flow angles through a transonic blade row. Consequently, distributions were assumed which met the following criteria:

(1) Deviation at the leading edge must equal the incidence angle

(2) Deviation at the trailing edge must equal the value predicted by conventional empirical deviation angle correlations

(3) Deviation angles in the covered portion of the passage should be extremely small

(4) The rate of increase of deviation angle approaching the trailing edge must approximately equal the rate of change of camber in that region in order to approach a Kutta condition at the trailing edge.

The distributions chosen for this design are presented in Figure 2.

The absolute level of blockage at each computing station was calculated according to the crude boundary layer model mentioned earlier in Section III.1. Although the computation was originally conceived as an annulus wall blockage model, it was employed here as a wake blockage model and linearly distributed spanwise. The ratio of hub blockage to tip blockage within each blade row was set equal to the ratio of hub solidity to tip solidity. The distribution is shown in Figure 3.

The aerodynamic calculation was least sensitive to the meridional distribution of losses within each blade row. Also, viewed in the meridional plane, the rotor shock system covered most of the axial depth of the rotor. Consequently, total pressure losses were simply linearly distributed through each blade row.

4. ANNULUS SHAPE

When designing a compressor incorporating blades of a specified geometric family, e.g. multiple circular arc, etc., coupled with a through-the-blade-row design approach, it is usually found necessary to adjust the annulus wall contour within the blade passage in order to satisfy optimization criteria. This frequently results in locally undesirable pressure gradients due to streamline curvature effects near the walls. With arbitrary airfoils, such as employed for this design, this situation can be largely avoided since the airfoil can adjust to meet optimization objectives over its entire surface, independently of the wall contour. Consequently, a specific objective in laying out this design was to maximize the radii of curvature defining the hub flowpath. As a result, the spinner contour is a circular arc tangent to the rotor hub, the rotor hub was made conical, and the hub flowpath from the rotor trailing edge to the exit plane is a single circular arc tangent to the rotor hub and to a cylinder about half a stator chord length downstream of the stator exit plane. A reflex curvature in this contour was deliberately avoided. The tip flowpath consisted of a circular-arc bellmouth tangent to a cylinder which extended past the stage exit plane.

5. ROTOR ASPECT RATIO

Whereas the preliminary design employed only a single, radial computing station to represent both the trailing edge of one blade and the leading edge of the following blade, the detail design used individual curvalinear stations to represent each edge as well as intermediate locations. The axial depth of the rotor at the hub was selected as the more important axial dimension to preserve without change from the preliminary design, since it directly affected rotor hub ramp angle. During the course of detail design iterations, it was necessary to reduce the inlet hub/tip radius ratio from the preliminary design value of approximately 0.35 to 0.31 in order to eliminate choking problems. At the rotor trailing edge, the hub/tip radius ratio was similarly reduced from 0.54 to 0.52. These hub changes caused the final ramp angle to rise to 32.5 degrees, the axial depth having remained constant. Final rotor aspect ratio was 1.32 based upon mean rotor span and the average of the chord length of blade sections on streamlines 1, 11, and 21.

6. STATOR ASPECT RATIO

The stator aspect ratio was decreased somewhat from the preliminary design, primarily as a result of the choice of hub flowpath contour described in Section III.4. The stator exit-plane area was preserved from the preliminary design, fixing the hub radius at this location. This radius intersected the circular arc defining this contour about twenty percent farther downstream from the rotor than in the preliminary design. The resultant final stator aspect ratio was 1.255, based upon mean blade span and the average of the chord length of blade sections on streamlines 1, 11, and 21.

7. ROTOR SOLIDITY AND THICKNESS

Rotor solidity and thickness are discussed together because of their relationship from a structural standpoint. Maximum section thicknesses of 6.0 percent chord at the hub and 2.5 percent chord at the tip were selected as the minimum values likely to be acceptable structurally. This subsequently proved adequate. Preliminary centrifugal stress calculations also indicated that rotor airfoil cross-sectional area should increase by a factor of approximately two from tip to hub. Rotor hub chord was already established within narrow limits on the bases of flow area contraction ratio and ramp angle, as discussed in Section III.5. These constraints fixed the tip chord length at approximately 4.0 inches. Aerodynamic considerations dominated the choice of tip solidity, with no constraint placed upon maximum hub solidity. It was desired that the tip solidity be high enough so that a weak oblique passage shock extending from

the leading edge of one airfoil to the suction surface of another would be fully captured within the passage. This was felt to enhance aerodynamic stability. A tip solidity of approximately 1.5 was chosen so that such a shock would intersect the suction surface at about 90 percent chord. This tip solidity plus the chord length set the number of rotor blades at 20. An even number was chosen for convenience in balancing the rotor. The resultant hub solidity was approximately 3.2. Because of the high shock losses which were potentially possible near the tip and the danger of choking near the hub, leading edge wedge angles were minimized by locating the position of maximum airfoil thickness relatively far aft. A linear spanwise distribution was specified, varying from 56 percent chord at the hub to 70 percent chord at the tip. The airfoil leading edge radius was initially fixed at 0.005 inch, spanwise constant, in order to minimize shock losses. However, high leading edge stresses near the hub subsequently caused the leading edge radius to be flared to triple this value within the last fifty percent of span approaching the hub. This distribution is shown in Figure 4. During the first few iterations of the detail design, linear spanwise distributions of chord length and thickness were specified. However, the resultant solidity at about two-thirds span appeared to be dangerously low from an aerodynamic standpoint. The final configuration was achieved by specifying the solidity distribution shown in Figure 5, increasing the chord length and decreasing the thickness near two-thirds span to preserve the satisfactory, nearly linear area distribution. The final spanwise distributions of thickness-to-chord-ratio, and streamsurface-section and cartesian-section area are presented in Figures 6 through 8 respectively.

8. STATOR SOLIDITY AND LEADING-EDGE SWEEP

The stator solidity distribution was defined purely on the basis of aerodynamic considerations related to loading, operating range, and leading-edge sweep. Sweep was used at the hub to minimize shock losses and to maximize incidence range. The locally high hub solidity also reduced the diffusion factor at the hub relative to the preliminary design, which had shown an increase in that region. Chord length was approximately fixed according to the considerations related to aspect ratio and hub flowpath contour described in Section III.6. An odd number of blades having no common divisor with the 20 rotor blades was desired to minimize the chance of exciting any resonant frequencies in the rotor through rotor-stator interaction. A minimum solidity of approximately 1.6 was selected because of the high turning required of the stator (varying from 40 to 50 degrees) and the high average Mach number level varying from about 0.7 to 1.0. These conditions were satisfied by 31 stator blades.

Initially, the stator trailing edge was a radial line coincident with the stacking axis. However, this resulted in a tip solidity of about 1.48 which appeared risky in relation to the turning, Mach number, and incidence variation which this region would experience over the expected operating range. Tip solidity was increased to 1.62 by slanting the trailing edge linearly aft from hub to tip with respect to the stacking line. The leading edge at the hub was located as far forward as mechanical clearances permitted, resulting in a hub solidity of 2.8. The angle of sweep was chosen such that the component of Mach number normal to the leading edge was approximately 0.4, the Mach number below which no further increase in low-loss incidence range has generally been observed in cascade experiments. The sweep with respect to the approach flow was smoothly reduced to zero at a radius near mid-span where the Mach number had dropped to about 0.85. The leading edge then swept slightly forward toward the tip simply to maintain adequate solidity at the outer radii. The final chord length and solidity distributions are shown in Figures 9 and 10. Maximum thickness was located at fifty percent meridional chord and its absolute value varied approximately linearly from 4.0 percent chord at the hub to 6.0 percent chord at the tip. Leading and trailing edge radii were approximately constant at about 0.0055 inch.

9. INCIDENCE ANGLE

The use of arbitrary airfoils allows greater design freedom in choosing incidence angle than exists with airfoils of a specified geometric family. Using a through-the-blade-row design approach and arbitrary airfoils, any reasonable distribution of incidence can be assumed and an apparently satisfactory solution obtained. Particularly with supersonic sections, the adequacy of the initial assumption should be tested by analyzing several sections in the cascade plane.

The initial assumption made for this rotor was a constant 1.0 degree of incidence with respect to the suction surface. Because the relative inlet Mach number to the rotor is supersonic over most of the span, flow through the rotor is controlled primarily by the wave pattern propagated upstream. A cascade-plane analysis using an inviscid, time-dependent calculation technique showed the initial rotor design to be about four percent deficient in the flow at both hub and tip. This corresponded to approximately one degree of incidence with respect to the suction surface. The final design assumed a constant 2.0 degrees of incidence with respect to the suction surface. The corresponding spanwise distribution of incidence with respect to the camber line is shown in Figure 11.

The stator inlet Mach number varied from approximately sonic at the hub to 0.7 at the tip. Because of the sonic Mach number and high solidity at the hub conducive to choking and also the

incidence tolerance presumably offered by leading edge sweep, a positive incidence of 5.0 degrees with respect to the camber line was assumed for the hub. Zero degrees of incidence with respect to the camber line was assumed for the stator tip. This was selected on the basis of high cambered subsonic cascade sections favoring low to negative incidence angles and also the expectation of high incidence angles occurring here as the stage was throttled toward stall. The spanwise variation from hub to tip was made linear and is also shown in Figure 11. No subsequent checks or adjustments were made to this distribution.

10. DEVIATION ANGLE

Deviation angle was predicted for both rotor and stator according to the method developed by NACA and described in Reference 8, Equations 269 and 271. A shape correction factor of 1.0 was used for both blade rows. However, the values predicted for the rotor were increased by 2.0 degrees at all radii, based upon examination of a few examples of potentially relevant recent data. The design deviation angle distributions for both blade rows are presented in Figure 12.

11. AIRFOIL FILLET RADII

The treatment of fillet radii at the rotor hub and both hub and tip of the stator merits mention because the approach was unconventional. For decades great attention has been paid to the design of fillets at the juncture of an aircraft wing and fuselage. Poorly designed fillets, or no fillet at all, can lead to large interference drag penalties. Also, it is well known that in diffusing passages, boundary layer growth in corners is greater than on adjacent surfaces and boundary layer separation will generally occur first in a corner under an adverse pressure gradient. However, common practice in turbomachine design appears to favor the smallest possible fillets for aerodynamic reasons, mitigated only by manufacturing and structural desires for larger fillets. The fillet geometry chosen for this design is patterned after the aircraft wing-fuselage model, although somewhat simplified. A radius of 0.25 inch was employed over most of the chord length; a rather large value in relation to most significant dimensions of this 17.0 inch diameter stage. The fillet radius declines smoothly from 0.25 inch to 0.06 inch over a distance of 0.75 inch approaching the leading and trailing edges of the rotor and the leading edge of the stator, and over a distance of 0.5 inch approaching the trailing edge of the stator. Note that the stator is hub-shrouded and the fillet treatment applies to both platforms.

12. STRUCTURAL IMPACT ON AERODYNAMIC DESIGN

A stress analysis of the steady state centrifugal and gas bending loads was performed for the rotor as part of a mechanical

design and fabrication contract. Small adjustments to the section centroid locations with respect to the stacking axis were required and the leading and trailing edges approaching the hub platform were thickened before satisfactory stress levels were achieved. All of these adjustments were recycled through the aerodynamic design calculation so that the final aerodynamic design was fully consistent with the structural design. A peak combined stress level of about 68,000 psi was predicted to occur at the leading edge at a radius of 6.5 inches at 20,000 revolutions per minute operating speed. The predicted rotor untwist distribution is shown in Figure 13. Correction for untwist was made by restaggering the cartesian airfoil manufacturing sections an equal and opposite amount.

Vibratory tests of sample airfoils were also performed under the above mentioned contract in order to establish natural frequencies and mode shapes and to determine strain gage locations and dynamic stress operating limits. Three gage locations were chosen corresponding to points of maximum sensitivity for the three lowest order modes of vibration. These modes were 300 Hz (first bending) 1050 Hz (second bending), and 1400 Hz (first torsion). The first eight modes of vibration were mapped and stress ratios defined for the three gage locations. The eighth mode was a complex mode at 4900 Hz. An operating dynamic stress limit of ±20,000 psi was chosen.

SECTION IV

FINAL DESIGN RESULTS

1. STAGE DIMENSIONAL CHARACTERISTICS

Stage Outer Diameter (constant)	17.00 inches
Rotor Inlet Hub/Tip Radius Ratio	0.312
Number of Rotor Blades	20
Number of Stator Blades	31
Static Rotor Tip Clearance	0.027
Design Point Rotor Running Clearance	0.016
Rotor Aspect Ratio	1.320
Stator Aspect Ratio	1.255

2. DESIGN POINT SPECIFICATIONS

Flow Rate	62.60 lb/sec
Flow Per Unit Frontal Area	39.715 lb/sec/ft^2
Flow Per Unit Annulus Area	43.995 lb/sec/ft^2
Rotor Total Pressure Ratio	1.966
Stage Total Pressure Ratio	1.912
Rotor Tip Static Pressure Ratio	2.169
Rotor Isentropic Efficiency	0.869
Stage Isentropic Efficiency	0.830
Inlet Corrected Tip Speed	1500 ft/sec

3. AERODYNAMIC CHARACTERISTICS

The details of the aerodynamic flow field throughout the stage are presented in the following pages of printout from the aerodynamic design computer program. The numbers and arrangement of computing stations are presented in Figure 14. For convenience, the computing stations defining blade row edges are also defined below.

Rotor leading edge	- Station No. 11
Rotor trailing edge	- Station No. 16
Stator leading edge	- Station No. 18
Stator trailing edge	- Station No. 23

The final streamwise distributions of total temperature through the rotor and radius-times-swirl-velocity through the stator are presented in Figures 15 and 16 respectively. The resultant streamwise static pressure distributions within both blade rows are shown in Figure 17. Figures 18 through 23 present a variety of spanwise parameter distributions of common interest. Rotor and stator relative inlet Mach number, diffusion factor, and total-pressure loss coefficient distributions are presented in Figures 18 through 20 respectively. Distributions of rotor-exit and stage-exit total pressure ratio, meridional velocity,

and isentropic efficiency are presented in Figures 21 through 23 respectively. The manufacturing dimensions of the annulus are shown in Figure 24.

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                         AXISYMMETRIC COMPRESSOR ANALYSIS PROGRAM CA1
                         ********************************************

TITLE =     HI-THRU-FLOW AERODYNAMIC ANALYSIS(DEPRESSED INLET)
NUMBER OF STATIONS = 26
NUMBER OF STREAMLINES = 21
NUMBER OF INLET CONDITION DATA RADII =  1
IFSIMP =  1 (2 -S.R.E.  .NE.2 -L.S.Q. STREAMLINES,NPOINT = IFSIMP+2)
MAXIMUM NUMBER OF PASSES =130
IFBL =  1 (1 -BLOCKAGE HELD AT DATA VALUES  2 -ANNULUS WALL B.L. CALCULATED)
ITER =  2 (1 -PRINT ALL VELOCITIES DURING ITERATIONS  2 -NORMAL OPTION)
IFTYPE =  1 (0 -ALL STATIONS UPRIGHT,ALL SOLUTIONS SUBSONIC  1 -STATION LEAN ANGLES AND SOLUTION TYPES SPECIFIED)
CONTINUITY TOLERANCE =  .0002
FRACTION OF INLET BLOCKAGE ON HUB =  .5300
GAS CONSTANT =  53.3230
SPECIFIC HEAT =  .24030

STATION-TO-STATION CHANGES ARE PRESCRIBED THUS

          STATION  2 FOLLOWS A BLADE-FREE SPACE

          STATION  3 FOLLOWS A BLADE-FREE SPACE

          STATION  4 FOLLOWS A BLADE-FREE SPACE

          STATION  5 FOLLOWS A BLADE-FREE SPACE

          STATION  6 FOLLOWS A BLADE-FREE SPACE

          STATION  7 FOLLOWS A BLADE-FREE SPACE

          STATION  8 FOLLOWS A BLADE-FREE SPACE

          STATION  9 FOLLOWS A BLADE-FREE SPACE

          STATION 10 FOLLOWS A BLADE-FREE SPACE

          STATION 11 FOLLOWS A BLADE-FREE SPACE

              CURVED STATION DEFINITION  ( 6 POINTS)

            RADIUS      XXB

          2.0514    -4.3130
          3.3356    -5.5545
          5.0537    -4.6133
          6.3399    -4.5318
          7.7351    -3.3115
          8.5000    -4.1618

          STATION 12 FOLLOWS A BLADE ROTATING AT  20222.0 RPM

              GEOMETRIC DESCRIPTION      (21 POINTS)

          RADIUS      BLADE SECTION      BLADE LEAN       BLOCKAGE
                          ANGLE            ANGLE

          3.3363      -35.964           -9.513           .1623
          3.1327      -35.573           -6.832           .1466
          3.5610      -37.954           -6.447           .1243
```

3.9031	-34.164	-3.847	.1123
4.0712	-39.544	-3.923	.1016
4.3530	-41.731	-5.488	.0955
4.6423	-42.948	-3.571	.0883
4.9445	-44.025	-3.862	.0826
5.2465	-45.477	-4.199	.0764
5.5561	-46.763	-2.732	.0701
5.8629	-48.266	-2.664	.0646
6.1806	-49.794	-1.326	.0593
6.4974	-51.220	-1.126	.0541
6.8179	-52.696	.027	.0501
7.1426	-54.246	1.345	.0468
7.4725	-55.862	2.376	.0442
7.8065	-57.571	2.381	.0423
7.9788	-58.412	2.284	.0405
8.1500	-59.244	2.243	.0393
8.3246	-60.989	2.890	.0382
8.5088	-61.828	4.109	.0374

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
3.6721	.03618	-0.000
3.8131	.02878	-0.000
4.1221	.01046	-0.000
5.2853	.01550	-0.000
6.5225	.02246	-0.000
7.6137	.03940	-0.000
8.5000	.05500	-0.000

TOTAL TEMPERATURE IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	TOTAL TEMP
3.6721	535.5000
3.8131	539.0000
4.1221	541.5000
5.2853	547.0000
6.5225	551.3000
7.6137	554.5000
8.5000	556.0270

CURVED STATION DEFINITION (4 POINTS)

RADIUS	AXB
3.8363	-7.5355
5.8700	-8.0000
6.4550	-7.9600
8.3606	-7.7250

STATION 13 FOLLOWS A BLADE ROTATING AT 28222.8 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
3.3893	-26.383	-6.472	.1949
3.6231	-28.464	-6.246	.1807
3.8781	-28.986	-5.919	.1657
4.0935	-29.982	-4.978	.1587
4.3374	-31.750	-3.197	.1365
4.5456	-33.392	-4.861	.1323
4.8037	-34.945	-4.846	.1234

3.1333	-28.347	-4.177	.1159
3.4178	-34.926	-3.726	.1075
4.7043	-41.303	-4.495	.1008
5.3332	-43.444	-5.225	.0926
6.2859	-45.495	-4.156	.0856
6.5829	-47.474	-3.311	.0794
6.8548	-49.432	-1.665	.0741
7.1926	-52.529	-.054	.0698
7.5074	-51.518	.239	.0564
7.8301	-55.734	.623	.0640
7.9926	-56.749	.482	.0624
8.1311	-57.635	.640	.0617
8.3296	-58.445	.699	.0603
8.5800	-58.702	.912	.0556

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
3.4577	.01480	-6.608
3.9183	.01709	-6.000
4.3037	.02066	-6.030
5.4331	.02906	-6.600
6.3122	.04486	-6.000
7.9110	.07750	-8.740
8.1038	.10098	-6.020

TOTAL TEMPERATURE IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	TOTAL TEMP
3.4577	555.3000
3.9149	568.3036
4.3085	559.3000
5.4331	576.0000
6.6122	562.1000
7.8115	587.3000
8.5000	598.4000

CURVED STATION DEFINITION (4 POINTS)

RADIUS	Z
3.3333	-7.3560
6.3950	-7.3450
3.5056	-7.4150
8.5000	-7.3110

STATION 14 FOLLOWS A BLADE ROTATING AT 28222.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
3.7335	-15.427	-4.198	.1770
3.9959	-13.061	-2.134	.1072
4.1037	-16.798	-1.635	.1536
4.3634	-28.765	-2.342	.1461
4.5031	-21.494	-1.156	.1394
4.8102	-23.674	-.596	.1301
5.0546	-25.278	-.464	.1219
5.3113	-23.263	-.427	.1146
5.5738	-32.426	-1.554	.1077
5.9348	-33.284	-2.983	.1013
6.1849	-34.113	-2.424	.0955

6.3799	-40.623	-4.240	.0898
6.5598	-43.264	-3.970	.0845
6.9452	-45.732	-3.364	.0798
7.2369	-48.195	-2.500	.0759
7.5362	-50.686	-1.927	.0728
7.8452	-53.212	-2.645	.0707
8.0638	-54.479	-3.297	.0692
8.1656	-55.741	-3.703	.0683
8.3310	-56.994	-3.924	.0677
8.5000	-58.249	-3.949	.0673

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
3.8393	.02210	-0.000
4.2225	.02620	-0.000
4.6170	.02950	-0.000
5.5877	.04310	-0.000
6.5719	.06770	-0.000
7.8406	.11400	-0.000
8.5000	.15400	-0.000

TOTAL TEMPERATURE IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	TOTAL TEMP
3.8393	576.0000
4.2225	582.0000
4.6170	590.0000
5.5877	601.0000
6.5719	611.0000
7.8406	619.0000
8.5000	623.0000

CURVED STATION DEFINITION (4 POINTS)

RADIUS	AXB
3.7365	-5.8010
5.4900	-6.0010
6.5500	-5.8730
8.5000	-5.3400

STATION 15 FOLLOWS A BLADE ROTATING AT 20222.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
4.0854	3.442	5.112	.1226
4.1459	1.350	6.453	.1170
4.4567	-4.271	4.956	.1061
4.6331	-9.226	1.328	.1041
4.8230	-10.209	4.360	.1073
5.0357	-12.721	7.645	.0945
5.2599	-16.446	6.953	.0879
5.4934	-19.774	6.100	.0816
5.7181	-23.702	7.419	.0754
5.9594	-28.877	3.198	.0713
6.2074	-31.946	.017	.0694
6.4623	-35.338	-1.031	.0681
6.7244	-38.573	-2.150	.0667
6.9942	-41.577	-2.316	.0652
7.2720	-44.473	-2.983	.0633

7.7789	-47.860	-3.908	.0615
7.8559	-50.165	-4.561	.0608
8.0110	-51.041	-5.432	.0602
8.1591	-53.165	-6.037	.0601
8.3319	-54.749	-6.923	.0605
8.5000	-56.387	-8.283	.0611

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
4.2214	.02810	-0.000
4.5296	.03450	-0.000
4.9549	.04005	-0.000
5.7360	.05830	-0.000
6.7323	.08964	-0.000
7.8535	.15300	-0.000
8.5000	.21900	-0.000

TOTAL TEMPERATURE IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	TOTAL TEMP
4.0334	508.0000
4.4560	607.0000
4.8202	614.2000
5.7151	525.3000
6.7252	534.4000
7.8382	645.0000
8.5000	651.5000

CURVED STATION DEFINITION (4 POINTS)

RADIUS	AXB
4.0054	-5.2510
5.7000	-5.1560
6.7250	-5.3300
8.5090	-5.5600

STATION 15 FOLLOWS A BLADE ROTATING AT 20222.9 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
4.4012	34.615	25.514	.0347
4.5309	32.691	24.417	.0358
4.7431	25.520	22.077	.0225
4.9230	17.107	16.393	.0124
5.1539	13.165	19.926	.0055
5.2800	4.475	23.264	.0090
5.4634	-3.287	18.507	.0061
5.6262	-8.892	17.772	.0064
5.9582	-15.018	14.983	.0060
6.1751	-20.562	13.245	.0061
6.3030	-25.614	10.381	.0063
6.5347	-30.226	7.758	.0063
6.7553	-34.171	5.592	.0060
7.0486	-37.429	3.064	.0054
7.3655	-41.246	.801	.0046
7.5417	-44.447	-1.622	.0045
7.9711	-47.467	-5.626	.0047
8.0214	-49.329	-7.536	.0050
8.1749	-50.384	-8.975	.0056

6.6302	-51.402	-3.672	.4009
6.5000	-53.526	-10.255	.3077

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
4.6259	.03702	-0.000
4.8834	.04360	-0.000
5.1773	.05170	-0.000
5.9345	.07500	-0.000
6.8278	.11600	-0.000
7.8502	.20008	-0.000
8.5000	.27400	-0.000

TOTAL TEMPERATURE IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	TOTAL TEMP
4.6283	540.2000
4.8394	539.5000
5.1773	539.1000
5.9345	538.6800
6.8270	541.7000
7.8582	653.7500
8.5000	664.1000

CURVED STATION DEFINITION (9 POINTS)

RADIUS	AXA
4.4612	-5.6650
4.6800	-5.6580
4.9050	-5.6130
5.3088	-5.5330
5.1044	-5.5217
5.8532	-5.5955
6.7945	-5.7200
7.8661	-5.9516
8.5000	-6.1340

STATION 17 FOLLOWS A BLADE-FREE SPACE

CURVED STATION DEFINITION (4 POINTS)

RADIUS	AXA
4.5534	-5.5200
5.2000	-5.3500
5.5800	-5.3200
8.5030	-5.7800

STATION 18 FOLLOWS A BLADE-FREE SPACE

CURVED STATION DEFINITION (4 POINTS)

RADIUS	AXA
4.6435	-5.3750
5.2500	-5.1250
5.8200	-5.0600
8.5800	-5.2500

STATION 19 FOLLOWS A BLADE ROTATING AT 0.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
4.9751	35.762	-10.331	.1098
5.0336	34.524	-12.028	.1048
5.2044	32.850	-12.300	.0913
5.3213	32.463	-11.002	.0849
5.4558	31.708	-10.839	.0793
5.6053	31.059	-10.178	.0750
5.7677	30.459	-9.215	.0717
5.9413	29.911	-7.905	.0693
6.1248	29.410	-6.462	.0673
6.3176	28.971	-4.923	.0658
6.5193	28.615	-3.453	.0647
6.7297	28.329	-2.176	.0639
6.9493	28.143	-1.031	.0635
7.1766	28.046	-.166	.0633
7.4181	28.063	.546	.0633
7.6690	28.203	.542	.0639
7.9320	28.605	2.006	.0650
8.0685	28.988	2.376	.0655
8.2384	29.379	1.718	.0664
8.3521	29.885	1.541	.0676
8.5000	30.500	1.280	.0691

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.1810	.04250	-0.000
5.3986	.03550	-0.000
5.5306	.02700	-0.000
6.2171	.01120	-0.000
6.9889	.00672	-0.000
7.3428	.01000	-0.000
8.5000	.01650	-0.000

WHIRL VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	WHIRL VELO
4.9751	596.9700
5.2310	572.4900
5.4588	558.3600
6.1192	496.1480
6.9479	453.3780
7.9332	430.6600
8.5000	437.6000

CURVED STATION DEFINITION (4 POINTS)

RADIUS	AXB
4.9751	-4.7700
5.5000	-4.6400
5.9200	-4.5800
8.5600	-4.7700

STATION 20 FOLLOWS A BLADE ROTATING AT 0.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE

5.1550	23.852	-3.226	.1131
5.2378	23.113	-4.762	.1171
5.3605	22.251	-5.339	.1065
5.4315	22.224	-4.356	.1042
5.5996	21.794	-4.465	.1003
5.7327	21.456	-4.191	.0963
5.8733	21.171	-3.578	.0930
6.0341	20.671	-3.224	.0903
6.2054	20.570	-2.609	.0882
6.3532	20.354	-2.137	.0866
6.5503	20.162	-1.459	.0856
6.7516	20.053	-.976	.0852
6.9331	19.993	-.537	.0854
7.2154	20.301	-.270	.0862
7.4487	20.853	-.115	.0874
7.6936	20.102	-.371	.0890
7.9503	20.154	.296	.0909
8.1317	20.324	.365	.0924
8.2190	20.415	-.264	.0935
8.3579	20.487	-.598	.0955
8.5000	20.556	-.960	.0965

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.3359	.03100	-0.000
5.5755	.06750	-0.000
5.7746	.05400	-0.000
6.3171	.02300	-0.000
7.3452	.01340	-0.000
7.8658	.02020	-0.000
8.5000	.03360	-0.000

WHIRL VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	WHIRL VELO
5.1561	434.0900
5.3734	391.0500
5.5973	377.3300
6.2061	344.7600
6.9327	313.4600
7.9510	305.1300
8.5300	339.2000

CURVED STATION DEFINITION (4 POINTS)

RADIUS	AXA
5.1450	-4.3000
5.5500	-4.2300
8.0300	-4.2300
8.5000	-4.3300

STATION 21 FOLLOWS A BLADE ROTATING AT 0.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
5.3756	13.641	2.358	.0940
5.4178	13.276	1.154	.0945
5.5353	12.832	.014	.0921
5.6264	12.793	.160	.0913

5.7312	12.593	-.284	.9903
5.5514	12.413	-.462	.9893
5.9536	12.219	-.597	.9884
6.1326	12.024	-.635	.9870
6.2916	11.845	-.615	.9870
6.4620	11.731	-.436	.9867
6.6034	11.671	-.356	.9866
6.8357	11.657	-.256	.9863
7.0332	11.675	-.196	.9876
7.2340	11.705	-.223	.9897
7.4403	11.734	-.294	.9903
7.7153	11.752	-.625	.9914
7.9577	11.807	-.356	.9927
8.0956	11.895	-.395	.9941
8.2254	11.955	-.856	.9952
8.3828	12.015	-1.190	.9961
8.5268	12.877	-1.562	.9969

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.5832	.11810	-0.000
5.7262	.10150	-0.000
5.9977	.04176	-0.000
6.4872	.03420	-0.000
7.1048	.02010	-0.000
7.9946	.03546	-0.000
8.5000	.04900	-0.000

WHIRL VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	WHIRL VELO
5.3756	241.3200
5.5164	237.5900
5.7357	232.4700
6.2310	214.3700
7.3335	232.3530
7.9541	137.4200
8.5700	233.3000

STATION 22 FOLLOWS A BLADE ROTATING AT 0.0 RPM

GEOMETRIC DESCRIPTION (21 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
5.3125	4.121	1.093	.9564
5.5517	4.151	.683	.9573
5.6654	4.145	.438	.9567
5.7436	4.274	.704	.9565
5.8431	4.243	.469	.9564
5.9030	4.173	.164	.9570
6.0303	4.167	.264	.9572
6.2308	4.107	.235	.9573
6.3311	4.009	-.035	.9575
6.5431	3.944	-.027	.9577
6.7159	3.942	.031	.9583
6.9455	3.916	-.117	.9585
7.0342	3.929	-.155	.9591
7.3002	3.952	-.221	.9603
7.5176	3.954	-.373	.9605
7.7455	3.948	-.492	.9615
7.9406	3.942	-.695	.9617

6.1189	3.917	-.853	.0627
6.2380	3.907	-1.047	.0632
6.3477	3.842	-1.263	.0634
6.5000	3.733	-1.464	.0634

PERFORMANCE DESCRIPTION (7 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.7106	.15846	-0.000
5.6448	.13606	-0.000
6.0849	.11000	-0.000
6.4355	.04600	-0.000
7.1517	.02600	-0.000
8.0077	.04820	-0.000
6.5009	.06550	-0.000

WHIRL VELOCITY IS SPECIFIED AT THIS STATION AT 7 POINTS

RADIUS	WHIRL VELO
5.5125	113.8033
5.0353	111.9480
5.6431	109.6300
6.3817	102.7800
7.0343	97.5700
7.9853	76.0300
8.5000	105.2800

STATION 23 FOLLOWS A BLADE ROTATING AT 0.0 RPM

GEOMETRIC DESCRIPTION (1 POINTS)

RADIUS	BLADE SECTION ANGLE	BLADE LEAN ANGLE	BLOCKAGE
0.0000	0.000	-0.000	.0060

PERFORMANCE DESCRIPTION (6 POINTS)

RADIUS	LOSS COEFF	DEVIATION
5.7500	.20250	-0.000
6.4606	.30280	-0.000
7.0400	.03370	-0.000
7.5508	.03300	-0.000
8.0138	.04960	-0.000
8.4428	.08030	-6.000

WHIRL VELOCITY IS SPECIFIED AT THIS STATION AT 1 POINTS

RADIUS	WHIRL VELO
0.0000	0.0000

STATION 24 FOLLOWS A BLADE-FREE SPACE

STATION 25 FOLLOWS A BLADE-FREE SPACE

STATION 26 FOLLOWS A BLADE-FREE SPACE

ANNULUS GEOMETRY SPECIFICATION AND SOLUTION TYPE INDICATORS

STATION NUMBER	AXIAL LOCATION	HUB RADIUS	CASING RADIUS	LEAN ANGLE	BLOCK DIST	BLOCK -AGE

1	-40.0000	0.0000	24.0000	0.000	1.3700	0.0000
2	-36.0000	0.0000	24.0000	0.000	1.3700	.0018
3	-31.0000	0.0000	22.2500	5.137	1.3700	.0045
4	-25.0000	0.0000	16.7000	8.520	1.3700	.0031
5	-18.8000	0.0000	13.3000	0.000	1.3700	.0027
6	-15.2500	0.0000	9.4800	4.940	1.3700	.0029
7	-11.0000	0.0000	8.9600	-13.808	1.3700	.0024
8	-9.8060	1.4211	8.5500	-11.130	1.3700	.0026
9	-9.2930	1.9843	8.5000	-4.750	1.3700	.0039
10	-9.0000	2.3337	8.5000	0.000	1.3700	.0055
11	-8.5100	2.6514	8.5000	3.540	1.3700	.0100
12	-7.9050	3.0363	8.5000	2.967	1.3700	.0300
13	-7.3500	3.3493	8.5000	.450	1.3700	.0505
14	-6.8010	3.7385	8.5000	-1.333	1.3700	.0580
15	-6.2510	4.0834	8.5000	-3.450	1.3700	.0600
16	-5.9650	4.4612	8.5000	-5.233	1.3700	.0600
17	-5.5200	4.5534	8.5000	-0.000	1.3700	.0600
18	-5.3750	4.6435	8.5000	0.000	1.3000	.0600
19	-4.7700	4.9751	8.5000	0.000	1.3000	.0600
20	-4.3000	5.1380	8.5000	-0.000	1.3000	.0600
21	-3.8300	5.3756	8.5000	-0.000	1.3000	.0600
22	-3.5193	5.5125	8.5000	2.800	1.3000	.0600
23	-3.4046	5.6314	8.5000	5.625	1.3000	.0600
24	-2.0000	5.7503	8.5000	-0.000	1.3000	.0149
25	-1.2700	5.7306	8.5000	0.000	1.3000	.0150
26	-.3500	5.7306	8.5000	-0.000	1.3000	.0150

FLOW = 45.00

FRACTIONS OF INLET BETWEEN HUB AND EACH STREAMLINE

0.0000	.1000	.2000	.2500	.3000	.3500	.4000	.4500	.5000
.5500	.6000	.6500	.7000	.7500	.8000	.8500	.9000	.9250
.9500	.9750	1.0000						

INLET CONDITIONS

RADIUS	TOTAL TEMPERATURE	TOTAL PRESSURE	FLOW ANGLE
0.0000	518.69	1521.0	-0.00

OUTPUT FROM PASS 66

STATION 1

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	0.000	0.00	.0549	0.000
2	2.4000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-3.201	0.00	.0549	0.000
3	4.8000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-6.230	0.00	.0549	0.000
4	6.0000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-7.645	0.00	.0549	0.000
5	7.2000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-8.963	0.00	.0549	0.000
6	8.4000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-10.159	0.00	.0549	0.000
7	9.6000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-11.211	0.00	.0549	0.000
8	10.8000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-12.095	0.00	.0549	0.000
9	12.0000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-12.783	0.00	.0549	0.000
10	13.2000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-13.248	0.00	.0549	0.000
11	14.4000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-13.458	0.00	.0549	0.000
12	15.6000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-13.374	0.00	.0549	0.000
13	16.8000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-12.956	0.00	.0549	0.000
14	18.0000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-12.153	0.00	.0549	0.000
15	19.2000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-10.907	0.00	.0549	0.000
16	20.4000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-9.151	0.00	.0549	0.000
17	21.6000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-6.807	0.00	.0549	0.000
18	22.2000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-5.386	0.00	.0549	0.000
19	22.8000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-3.786	0.00	.0549	0.000
20	23.4000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	-1.994	0.00	.0549	0.000
21	24.0000	66.259	66.259	0.000	518.7	518.3	1521.00	1517.25	.0594	0.000	0.000	0.00	.0549	0.000

STATION 2

GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	83.921	83.921	0.000	518.7	518.1	1521.00	1515.41	.0725	0.000	0.000	0.00	.0549	0.000
2	2.1753	80.733	80.703	0.000	518.7	518.1	1521.00	1515.44	.0724	0.000	-3.141	2167.75	.0549	0.000
3	4.3633	80.010	80.013	0.000	518.7	518.2	1521.00	1515.54	.0717	0.000	-6.199	+272.29	.0549	0.000
4	5.4631	79.470	79.470	0.000	518.7	518.2	1521.00	1515.61	.0712	0.000	-7.058	********	.0549	0.000
5	6.5631	78.800	78.800	0.000	518.7	518.2	1521.00	1515.70	.0706	0.000	-9.049	-1597.00	.0549	0.000
6	7.6532	77.998	77.999	0.000	518.7	518.2	1521.00	1515.81	.0699	0.000	-10.356	-710.92	.0549	0.000
7	8.6072	77.061	77.061	0.000	518.7	518.2	1521.00	1515.93	.0691	0.000	-11.561	-405.00	.0549	0.000
8	9.9423	75.989	75.989	0.000	518.7	518.2	1521.00	1516.07	.0681	0.000	-12.647	-260.16	.0549	0.000
9	11.0925	74.760	74.799	0.000	518.7	518.2	1521.00	1516.23	.0670	0.000	-13.594	-179.89	.0549	0.000
10	12.2582	73.430	73.430	0.000	518.7	518.2	1521.00	1516.40	.0658	0.000	-14.379	-130.37	.0549	0.000
11	13.4426	71.937	71.937	0.000	518.7	518.3	1521.00	1516.58	.0645	0.000	-14.975	-98.85	.0549	0.000
12	14.6499	70.249	70.249	0.000	518.7	518.3	1521.00	1516.78	.0630	0.000	-15.353	-76.85	.0549	0.000
13	15.8798	68.508	68.508	0.000	518.7	518.3	1521.00	1516.99	.0614	0.000	-15.475	-61.16	.0549	0.000
14	17.1385	66.556	66.556	0.000	518.7	518.3	1521.00	1517.22	.0597	0.000	-15.295	-49.61	.0549	0.000
15	18.4292	64.430	64.430	0.000	518.7	518.3	1521.00	1517.46	.0578	0.000	-14.757	-40.91	.0549	0.000
16	19.7555	62.110	62.110	0.000	518.7	518.4	1521.00	1517.71	.0557	0.000	-13.787	-34.25	.0549	0.000
17	21.1225	59.571	59.571	0.000	518.7	518.4	1521.00	1517.97	.0534	0.000	-12.289	-29.15	.0549	0.000
18	21.8229	58.211	58.211	0.000	518.7	518.4	1521.00	1518.11	.0522	0.000	-11.301	-27.07	.0549	0.000
19	22.5353	56.755	56.755	0.000	518.7	518.4	1521.00	1518.25	.0509	0.000	-10.128	-25.28	.0549	0.000
20	23.2687	55.256	55.255	0.000	518.7	518.4	1521.00	1518.39	.0496	0.000	-8.746	-23.76	.0549	0.000
21	24.0000	53.717	53.717	0.000	518.7	518.4	1521.00	1518.54	.0481	0.000	-7.125	-22.52	.0549	0.000

STATION 3

GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	106.308	106.309	0.000	518.7	517.7	1521.00	1511.36	.0953	0.000	0.000	0.00	.0547	0.000
2	1.8979	107.029	107.029	0.000	518.7	517.7	1521.00	1511.23	.0960	0.000	-3.295	-754.13	.0547	0.000
3	3.7853	106.656	106.666	0.000	518.7	517.7	1521.00	1511.30	.0957	0.000	-6.613	-370.58	.0547	0.000
4	4.7329	106.067	106.067	0.000	518.7	517.8	1521.00	1511.41	.0951	0.000	-8.263	-283.15	.0547	0.000
5	5.6823	105.176	105.176	0.000	518.7	517.8	1521.00	1511.57	.0943	0.000	-9.902	-222.03	.0548	0.000
6	6.6407	103.982	103.982	0.000	518.7	517.8	1521.00	1511.78	.0933	0.000	-11.527	-177.32	.0548	0.000
7	7.6083	102.472	102.472	0.000	518.7	517.8	1521.00	1512.04	.0919	0.000	-13.136	-143.48	.0548	0.000
8	8.5833	100.631	100.631	0.000	518.7	517.8	1521.00	1512.36	.0902	0.000	-14.725	-117.29	.0548	0.000
9	9.5875	98.444	98.444	0.000	518.7	517.9	1521.00	1512.73	.0883	0.000	-16.289	-96.67	.0548	0.000
10	10.6073	95.892	95.892	0.000	518.7	517.9	1521.00	1513.16	.0860	0.000	-17.823	-80.23	.0548	0.000
11	11.6547	92.954	92.954	0.000	518.7	518.0	1521.00	1513.63	.0833	0.000	-19.320	-66.97	.0548	0.000
12	12.7357	89.607	89.607	0.000	518.7	518.0	1521.00	1514.15	.0803	0.000	-20.774	-56.16	.0548	0.000
13	13.8594	85.824	85.824	0.000	518.7	518.1	1521.00	1514.71	.0769	0.000	-22.175	-47.28	.0548	0.000
14	15.0325	81.574	81.574	0.000	518.7	518.1	1521.00	1515.32	.0731	0.000	-23.513	-39.91	.0548	0.000
15	16.2700	76.823	76.823	0.000	518.7	518.2	1521.00	1515.96	.0689	0.000	-24.776	-33.73	.0549	0.000
16	17.5851	71.527	71.527	0.000	518.7	518.3	1521.00	1516.63	.0641	0.000	-25.952	-28.50	.0549	0.000
17	19.0008	65.630	65.630	0.000	518.7	518.3	1521.00	1517.32	.0586	0.000	-27.030	-24.02	.0549	0.000
18	19.7537	62.434	62.434	0.000	518.7	518.4	1521.00	1517.67	.0560	0.000	-27.529	-22.00	.0549	0.000
19	20.5423	59.056	59.056	0.000	518.7	518.4	1521.00	1518.02	.0529	0.000	-28.003	-20.11	.0549	0.000
20	21.3721	55.480	55.480	0.000	518.7	518.4	1521.00	1518.37	.0497	0.000	-28.455	-18.34	.0549	0.000
21	22.2500	51.684	51.684	0.000	518.7	518.5	1521.00	1518.72	.0463	0.000	-28.891	-16.66	.0549	0.000

STATION 4

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	163.447	163.447	0.000	518.7	516.5	1521.00	1496.15	.1472	0.000	0.000	0.00	.0544	0.000
2	1.5255	160.716	160.716	0.000	518.7	516.4	1521.00	1497.36	.1497	0.000	-3.468	+256.19	.0544	0.000
3	3.0293	158.155	158.155	0.000	518.7	516.3	1521.00	1496.97	.1510	0.000	-6.961	1748.30	.0544	0.000
4	3.7753	158.373	158.373	0.000	518.7	516.3	1521.00	1496.91	.1512	0.000	-8.733	1420.10	.0544	0.000
5	4.5217	158.236	158.236	0.000	518.7	516.3	1521.00	1496.95	.1511	0.000	-10.533	1290.54	.0544	0.000
6	5.2654	157.723	157.723	0.000	516.7	516.3	1521.00	1497.09	.1506	0.000	-12.364	1293.03	.0544	0.000
7	6.0175	156.508	156.508	0.000	518.7	516.4	1521.00	1497.35	.1498	0.000	-14.233	1454.53	.0544	0.000
8	6.7721	155.452	155.452	0.000	518.7	516.4	1521.00	1497.73	.1486	0.000	-16.145	1982.90	.0544	0.000
9	7.5341	153.649	153.649	0.000	518.7	516.5	1521.00	1496.23	.1470	0.000	-18.107	+749.16	.0544	0.000
10	8.3053	151.350	151.333	0.000	518.7	516.5	1521.00	1498.37	.1449	0.000	-20.124	-4840.02	.0544	0.000
11	9.0941	148.436	148.433	0.000	516.7	516.6	1521.00	1499.05	.1423	0.000	-22.204	-1318.28	.0544	0.000
12	9.9005	144.992	144.992	0.000	518.7	516.7	1521.00	1500.57	.1391	0.000	-24.353	-688.22	.0545	0.000
13	10.7315	139.974	139.974	0.000	518.7	516.8	1521.00	1501.63	.1354	0.000	-26.575	-436.04	.0545	0.000
14	11.5935	140.050	143.303	0.000	518.7	516.9	1521.00	1502.85	.1311	0.000	-29.066	-307.14	.0545	0.000
15	12.4953	140.516	140.516	0.000	518.7	517.0	1521.00	1504.19	.1261	0.000	-31.280	-232.10	.0546	0.000
16	13.4453	134.238	134.238	0.000	518.7	517.2	1521.00	1505.66	.1205	0.000	-33.761	-186.73	.0546	0.000
17	14.4549	127.235	127.235	0.000	518.7	517.3	1521.00	1507.20	.1142	0.000	-36.323	-161.15	.0546	0.000
18	14.9550	123.593	123.593	0.000	518.7	517.4	1521.00	1507.99	.1109	0.000	-37.629	-154.92	.0547	0.000
19	15.5352	119.314	119.314	0.000	518.7	517.5	1521.00	1508.77	.1075	0.000	-38.944	-154.10	.0547	0.000
20	16.1074	116.011	116.011	0.000	518.7	517.6	1521.00	1509.53	.1041	0.000	-40.255	-161.43	.0547	0.000
21	16.7603	112.276	112.276	0.000	518.7	517.6	1521.00	1510.25	.1007	0.000	-41.557	-185.20	.0547	0.000

STATION 5

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	269.523	269.523	0.000	518.7	511.7	1521.00	1450.56	.2612	0.000	0.000	0.00	.0532	0.000
2	1.1559	269.523	269.523	0.000	516.7	511.7	1521.00	1450.56	.2612	0.000	-2.654	240.59	.0532	0.000
3	2.3377	269.309	269.309	0.000	518.7	511.7	1521.00	1450.66	.2610	0.000	-5.602	128.39	.0532	0.000
4	2.9225	268.355	268.355	0.000	518.7	511.7	1521.00	1450.82	.2607	0.000	-7.352	107.33	.0532	0.000
5	3.5061	268.413	268.413	0.000	518.7	511.8	1521.00	1451.09	.2602	0.000	-8.952	93.02	.0532	0.000
6	4.0953	267.525	267.525	0.000	516.7	511.8	1521.00	1451.51	.2594	0.000	-10.509	82.70	.0532	0.000
7	4.6853	266.247	266.247	0.000	516.7	511.9	1521.00	1452.12	.2582	0.000	-12.531	74.95	.0532	0.000
8	5.2734	264.491	264.491	0.000	518.7	512.0	1521.00	1452.95	.2566	0.000	-14.124	69.00	.0532	0.000
9	5.8734	262.156	262.155	0.000	518.7	512.1	1521.00	1454.04	.2545	0.000	-15.999	64.37	.0533	0.000
10	6.4875	259.121	259.121	0.000	516.7	512.2	1521.00	1455.45	.2517	0.000	-17.906	60.79	.0533	0.000
11	7.1065	255.237	255.237	0.000	518.7	512.4	1521.00	1457.23	.2481	0.000	-20.036	58.12	.0533	0.000
12	7.7404	250.320	250.320	0.000	518.7	512.6	1521.00	1459.46	.2436	0.000	-22.226	56.30	.0534	0.000
13	8.3937	244.136	244.136	0.000	518.7	512.9	1521.00	1462.20	.2380	0.000	-24.548	55.38	.0535	0.000
14	9.0725	236.357	236.357	0.000	518.7	513.2	1521.00	1465.56	.2310	0.000	-27.018	55.56	.0536	0.000
15	9.7854	226.333	226.333	0.000	518.7	513.6	1521.00	1469.63	.2221	0.000	-29.692	57.28	.0537	0.000
16	10.5433	214.513	214.513	0.000	516.7	514.1	1521.00	1474.51	.2111	0.000	-32.463	61.54	.0538	0.000
17	11.3027	215.139	213.139	0.000	516.7	514.7	1521.00	1480.33	.1972	0.000	-35.454	71.00	.0539	0.000
18	11.8025	210.077	210.077	0.000	516.7	515.0	1521.00	1483.62	.1889	0.000	-37.017	79.94	.0540	0.000
19	12.2643	139.739	139.739	0.000	518.7	515.4	1521.00	1487.16	.1796	0.000	-38.610	95.28	.0541	0.000
20	12.7649	168.159	168.159	0.000	518.7	515.7	1521.00	1490.96	.1691	0.000	-40.244	126.24	.0542	0.000
21	13.3033	174.571	174.571	0.000	516.7	516.1	1521.00	1495.00	.1572	0.000	-41.686	216.77	.0543	0.000

STATION 6

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	384.879	384.879	0.000	518.7	506.4	1521.00	1398.12	.3490	0.000	0.000	0.00	.0518	0.000
2	1.0241	390.436	390.436	0.000	518.7	506.0	1521.00	1394.62	.3543	0.000	.951	33.21	.0517	0.000
3	2.0290	403.873	403.873	0.000	518.7	505.1	1521.00	1386.10	.3667	0.000	-1.704	34.32	.0515	0.000
4	2.5210	410.407	410.407	0.000	518.7	504.7	1521.00	1381.85	.3728	0.000	-2.944	32.69	.0514	0.000
5	3.0071	417.037	417.037	0.000	518.7	504.2	1521.00	1377.44	.3791	0.000	-4.196	30.69	.0512	0.000
6	3.4875	423.953	423.953	0.000	518.7	503.7	1521.00	1372.85	.3855	0.000	-5.486	28.60	.0511	0.000
7	3.9625	431.021	431.021	0.000	518.7	503.2	1521.00	1368.06	.3921	0.000	-6.823	26.55	.0510	0.000
8	4.4322	438.387	438.387	0.000	518.7	502.7	1521.00	1363.05	.3989	0.000	-8.217	24.57	.0509	0.000
9	4.8973	445.826	445.826	0.000	518.7	502.1	1521.00	1357.80	.4060	0.000	-9.679	22.68	.0507	0.000
10	5.3581	453.595	453.595	0.000	518.7	501.6	1521.00	1352.30	.4133	0.000	-11.217	20.90	.0506	0.000
11	5.8155	461.640	461.640	0.000	518.7	501.0	1521.00	1346.53	.4209	0.000	-12.846	19.22	.0504	0.000
12	6.2702	469.980	469.980	0.000	518.7	500.3	1521.00	1340.45	.4288	0.000	-14.582	17.66	.0502	0.000
13	6.7231	478.635	478.635	0.000	518.7	499.6	1521.00	1334.05	.4370	0.000	-16.447	16.21	.0501	0.000
14	7.1753	487.609	487.609	0.000	518.7	498.9	1521.00	1327.31	.4455	0.000	-18.469	14.87	.0499	0.000
15	7.6281	496.872	496.872	0.000	518.7	498.1	1521.00	1320.25	.4543	0.000	-20.688	13.66	.0497	0.000
16	8.0829	506.329	506.329	0.000	518.7	497.4	1521.00	1312.94	.4633	0.000	-23.156	12.59	.0495	0.000
17	8.5416	515.758	515.758	0.000	518.7	496.5	1521.00	1305.54	.4723	0.000	-25.946	11.68	.0493	0.000
18	8.7730	520.353	520.353	0.000	518.7	496.2	1521.00	1301.90	.4767	0.000	-27.493	11.29	.0492	0.000
19	9.0052	524.752	524.752	0.000	518.7	495.8	1521.00	1298.38	.4809	0.000	-29.163	10.96	.0491	0.000
20	9.2417	528.829	528.829	0.000	518.7	495.4	1521.00	1295.11	.4849	0.000	-30.978	10.69	.0490	0.000
21	9.4808	532.407	532.407	0.000	518.7	495.1	1521.00	1292.22	.4883	0.000	-32.965	10.50	.0490	0.000

STATION 7

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	0.0000	0.000	0.000	0.000	518.7	518.7	1521.00	1521.00	0.0000	0.000	37.849	3.37	.0550	0.000
2	1.3051	417.754	417.754	0.000	518.7	504.2	1521.00	1377.00	.3797	0.000	13.425	6.19	.0512	0.000
3	2.1123	457.058	457.058	0.000	518.7	501.3	1521.00	1349.82	.4166	0.000	8.200	10.22	.0505	0.000
4	2.5337	474.922	474.922	0.000	518.7	499.9	1521.00	1336.80	.4335	0.000	6.195	11.34	.0502	0.000
5	2.9573	491.193	491.193	0.000	518.7	498.6	1521.00	1324.59	.4489	0.000	4.420	12.42	.0498	0.000
6	3.3807	505.939	505.939	0.000	518.7	497.4	1521.00	1313.24	.4629	0.000	2.800	13.40	.0495	0.000
7	3.8032	519.314	519.314	0.000	518.7	496.2	1521.00	1302.72	.4757	0.000	1.284	14.24	.0492	0.000
8	4.2246	531.487	531.487	0.000	518.7	495.2	1521.00	1292.96	.4874	0.000	-.164	14.92	.0490	0.000
9	4.6451	542.622	542.622	0.000	518.7	494.2	1521.00	1283.88	.4981	0.000	-1.568	15.41	.0487	0.000
10	5.0652	552.874	552.874	0.000	518.7	493.2	1521.00	1275.40	.5080	0.000	-2.948	15.68	.0485	0.000
11	5.4856	562.386	562.386	0.000	518.7	492.4	1521.00	1267.42	.5172	0.000	-4.322	15.75	.0483	0.000
12	5.9059	571.293	571.293	0.000	518.7	491.5	1521.00	1259.86	.5259	0.000	-5.708	15.60	.0481	0.000
13	6.3299	579.716	579.715	0.000	518.7	490.7	1521.00	1252.64	.5340	0.000	-7.124	15.26	.0479	0.000
14	6.7555	587.763	587.763	0.000	518.7	489.9	1521.00	1245.66	.5419	0.000	-8.594	14.72	.0477	0.000
15	7.1848	595.527	595.527	0.000	518.7	489.2	1521.00	1238.86	.5495	0.000	-10.147	14.00	.0475	0.000
16	7.6188	603.088	[illegible]	0.000	518.7	488.4	1521.00	1232.19	.5569	0.000	-11.825	13.12	.0473	0.000
17	8.0585	610.519	[illegible]	0.000	518.7	487.7	1521.00	1225.57	.5642	0.000	-13.683	12.06	.0471	0.000
18	8.2809	[illegible]	[illegible]	0.000	518.7	487.3	1521.00	1222.26	.5678	0.000	-14.703	11.46	.0470	0.000
19	8.5052	617.300	[illegible]	0.000	518.7	486.9	1521.00	1218.94	.5714	0.000	-15.803	10.81	.0470	0.000
20	8.7315	621.515	[illegible]	0.000	518.7	486.5	1521.00	1215.59	.5751	0.000	-17.000	10.12	.0469	0.000
21	8.9630	625.377	625.377	0.000	518.7	486.1	1521.00	1212.17	.5788	0.000	-18.320	9.38	.0468	0.000

STATION 8

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	1.4211	393.416	393.416	0.000	518.7	505.8	1521.00	1392.78	.3570	0.000	50.790	-4.65	.0516	0.000
2	1.7757	418.423	418.423	0.000	518.7	504.1	1521.00	1370.57	.3803	0.000	27.956	5.30	.0512	0.000
3	2.4353	473.051	473.051	0.000	518.7	500.1	1521.00	1339.19	.4317	0.000	19.072	7.31	.0502	0.000
4	2.8838	497.239	497.239	0.000	518.7	498.1	1521.00	1319.93	.4547	0.000	15.715	8.55	.0497	0.000
5	3.1773	519.251	519.251	0.000	518.7	496.2	1521.00	1302.76	.4757	0.000	12.927	9.73	.0492	0.000
6	3.5557	539.338	539.338	0.000	518.7	494.5	1521.00	1286.57	.4938	0.000	10.556	10.79	.0488	0.000
7	3.9304	557.331	557.331	0.000	518.7	492.6	1521.00	1271.20	.5129	0.000	8.482	11.71	.0484	0.000
8	4.3192	575.156	575.155	0.000	518.7	491.2	1521.00	1256.53	.5296	0.000	6.625	12.49	.0480	0.000
9	4.7034	591.443	591.443	0.000	518.7	489.6	1521.00	1242.45	.5455	0.000	4.932	13.13	.0476	0.000
10	5.0829	606.478	606.478	0.000	518.7	488.0	1521.00	1228.82	.5606	0.000	3.367	13.58	.0472	0.000
11	5.4655	621.741	621.741	0.000	518.7	486.5	1521.00	1215.47	.5752	0.000	1.907	13.82	.0469	0.000
12	5.8437	636.333	636.333	0.000	518.7	485.0	1521.00	1202.16	.5897	0.000	.535	13.81	.0465	0.000
13	6.2325	651.325	651.325	0.000	518.7	483.4	1521.00	1188.55	.6042	0.000	-.762	13.52	.0461	0.000
14	6.6171	666.257	666.257	0.000	518.7	481.7	1521.00	1174.22	.6195	0.000	-1.999	12.97	.0457	0.000
15	7.0027	682.504	682.504	0.000	518.7	479.9	1521.00	1158.94	.6359	0.000	-3.185	12.13	.0453	0.000
16	7.3832	700.596	700.665	0.000	518.7	477.8	1521.00	1141.14	.6541	0.000	-4.337	11.23	.0448	0.000
17	7.7764	721.237	721.237	0.000	518.7	475.4	1521.00	1120.67	.6751	0.000	-5.470	10.15	.0442	0.000
18	7.9701	732.532	732.532	0.000	518.7	474.0	1521.00	1109.42	.6863	0.000	-6.036	9.61	.0439	0.000
19	8.1637	746.255	746.255	0.000	518.7	472.5	1521.00	1095.36	.6997	0.000	-6.606	9.06	.0435	0.000
20	8.3571	759.534	759.534	0.000	518.7	470.5	1521.00	1083.10	.7133	0.000	-7.163	8.52	.0432	0.000
21	8.5500	773.744	773.744	0.000	518.7	468.9	1521.00	1067.91	.7292	0.000	-7.772	8.00	.0427	0.000

STATION 9

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	1.8541	493.240	493.240	0.000	518.7	498.4	1521.00	1323.04	.4508	0.000	39.920	-9.34	.0498	0.000
2	2.2211	501.248	501.248	0.000	518.7	497.8	1521.00	1316.80	.4585	0.000	33.166	-135.07	.0496	0.000
3	2.7641	506.109	506.109	0.000	518.7	495.7	1521.00	1297.30	.4622	0.000	24.222	15.25	.0491	0.000
4	3.0358	542.251	542.251	0.000	518.7	494.2	1521.00	1284.17	.4978	0.000	20.757	13.33	.0487	0.000
5	3.4242	560.456	560.456	0.000	518.7	492.5	1521.00	1269.66	.5153	0.000	17.662	12.54	.0483	0.000
6	3.7721	579.623	579.623	0.000	518.7	490.7	1521.00	1252.55	.5341	0.000	15.365	12.15	.0479	0.000
7	4.1253	599.523	599.523	0.000	518.7	488.6	1521.00	1235.27	.5535	0.000	13.208	12.29	.0474	0.000
8	4.4812	619.245	619.245	0.000	518.7	486.5	1521.00	1217.74	.5728	0.000	11.253	12.76	.0469	0.000
9	4.8359	638.229	638.229	0.000	518.7	484.6	1521.00	1200.42	.5915	0.000	9.472	13.48	.0464	0.000
10	5.1983	656.245	656.245	0.000	518.7	482.5	1521.00	1183.68	.6095	0.000	7.838	14.42	.0460	0.000
11	5.5563	673.908	673.063	0.000	518.7	481.0	1521.00	1167.78	.6263	0.000	6.338	15.57	.0455	0.000
12	5.9103	691.553	691.553	0.000	518.7	479.2	1521.00	1152.91	.6419	0.000	4.964	16.93	.0451	0.000
13	6.2793	702.730	702.730	0.000	518.7	477.6	1521.00	1139.19	.6562	0.000	3.717	18.52	.0447	0.000
14	6.6417	715.479	715.479	0.000	518.7	476.1	1521.00	1126.64	.6692	0.000	2.593	20.37	.0444	0.000
15	7.0073	725.950	725.950	0.000	518.7	474.7	1521.00	1115.24	.6809	0.000	1.612	22.53	.0441	0.000
16	7.3707	737.337	737.337	0.000	518.7	473.4	1521.00	1104.92	.6915	0.000	.760	25.10	.0438	0.000
17	7.7453	746.554	746.554	0.000	518.7	472.3	1521.00	1095.58	.7010	0.000	.048	28.23	.0435	0.000
18	7.9355	752.951	752.951	0.000	518.7	471.6	1521.00	1091.26	.7055	0.000	-.257	30.05	.0434	0.000
19	8.1233	754.925	754.925	0.000	518.7	471.3	1521.00	1087.14	.7097	0.000	-.527	32.10	.0433	0.000
20	8.3115	759.730	759.730	0.000	518.7	470.6	1521.00	1083.21	.7137	0.000	-.762	34.42	.0432	0.000
21	8.5000	762.409	762.409	0.000	518.7	470.3	1521.00	1079.46	.7175	0.000	-.962	37.06	.0430	0.000

STATION 10
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GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	2.3337	560.754	560.754	0.000	518.7	432.5	1521.00	1268.81	.5156	0.000	35.228	-6.21	.0483	0.000
2	2.5315	559.545	559.545	0.000	518.7	433.0	1521.00	1273.19	.5106	0.000	31.762	-12.58	.0484	0.000
3	3.0115	561.746	561.746	0.000	518.7	432.4	1521.00	1267.58	.5100	0.000	25.825	31.50	.0483	0.000
4	3.3104	575.336	575.336	0.000	518.7	431.1	1521.00	1256.45	.5298	0.000	23.103	16.98	.0480	0.000
5	3.6234	593.763	593.763	0.000	518.7	429.4	1521.00	1240.59	.5476	0.000	20.705	13.32	.0475	0.000
6	3.9533	614.510	614.511	0.000	518.7	427.2	1521.00	1221.75	.5634	0.000	18.436	12.58	.0470	0.000
7	4.2957	637.531	637.541	0.000	518.7	424.8	1521.00	1201.02	.5809	0.000	16.309	12.84	.0465	0.000
8	4.6359	660.911	660.911	0.000	518.7	422.3	1521.00	1179.32	.6141	0.000	14.322	13.29	.0459	0.000
9	4.9775	683.947	683.947	0.000	518.7	419.8	1521.00	1157.38	.6372	0.000	12.454	14.16	.0452	0.000
10	5.4203	706.018	706.018	0.000	518.7	417.2	1521.00	1135.90	.6595	0.000	10.691	15.59	.0446	0.000
11	5.6031	725.433	725.453	0.000	518.7	414.4	1521.00	1113.75	.6804	0.000	9.033	17.04	.0441	0.000
12	6.0074	744.852	744.852	0.000	518.7	412.0	1521.00	1097.35	.6993	0.000	7.479	20.60	.0436	0.000
13	6.3534	760.734	760.734	0.000	518.7	410.5	1521.00	1081.25	.7157	0.000	6.033	24.92	.0431	0.000
14	6.7023	773.879	773.879	0.000	518.7	408.6	1521.00	1067.60	.7233	0.000	4.702	31.44	.0427	0.000
15	7.0537	784.142	784.142	0.000	518.7	407.5	1521.00	1057.17	.7401	0.000	3.494	41.31	.0424	0.000
16	7.4032	791.742	791.742	0.000	518.7	406.5	1521.00	1049.35	.7480	0.000	2.415	59.39	.0422	0.000
17	7.7616	796.741	796.741	0.000	518.7	405.9	1521.00	1044.16	.7533	0.000	1.473	96.52	.0420	0.000
18	7.9502	798.302	798.302	0.000	518.7	405.5	1521.00	1042.47	.7550	0.000	1.052	135.34	.0420	0.000
19	8.1782	799.476	799.474	0.000	518.7	405.5	1521.00	1041.33	.7562	0.000	.606	212.62	.0420	0.000
20	8.3131	800.350	800.380	0.000	518.7	405.4	1521.00	1040.68	.7566	0.000	.315	446.45	.0419	0.000
21	8.5093	800.278	800.278	0.000	518.7	405.4	1521.00	1040.47	.7570	0.000	0.000	0.00	.0419	0.000

STATION 11
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GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANG.VEL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	2.6514	534.154	534.154	0.000	518.7	433.1	1521.00	1274.35	.5032	0.000	32.462	********	.0485	0.000
2	2.9173	545.329	545.326	0.000	518.7	432.7	1521.00	1270.36	.5139	0.000	31.035	31.89	.0484	0.000
3	3.2491	582.753	582.753	0.000	518.7	430.4	1521.00	1253.01	.5370	0.000	27.548	14.07	.0476	0.000
4	3.5151	603.176	603.176	0.000	518.7	428.4	1521.00	1232.14	.5570	0.000	25.428	12.37	.0473	0.000
5	3.8071	626.983	626.983	0.000	518.7	426.3	1521.00	1211.16	.5799	0.000	23.212	11.67	.0467	0.000
6	4.1165	651.342	651.342	0.000	518.7	423.4	1521.00	1190.28	.6040	0.000	21.013	11.37	.0461	0.000
7	4.4201	677.033	677.033	0.000	518.7	420.5	1521.00	1163.70	.6303	0.000	18.866	11.25	.0454	0.000
8	4.7465	703.349	703.349	0.000	518.7	417.5	1521.00	1138.56	.6568	0.000	16.825	11.35	.0447	0.000
9	5.0711	729.432	729.432	0.000	518.7	414.4	1521.00	1112.36	.6839	0.000	14.659	11.60	.0440	0.000
10	5.4013	756.535	755.535	0.000	518.7	411.1	1521.00	1085.53	.7113	0.000	12.474	11.94	.0432	0.000
11	5.7352	782.734	782.734	0.000	518.7	407.7	1521.00	1059.64	.7386	0.000	11.174	12.43	.0425	0.000
12	6.0711	807.319	807.319	0.000	518.7	404.4	1521.00	1032.50	.7651	0.000	9.451	13.33	.0417	0.000
13	6.4093	831.022	831.022	0.000	518.7	401.2	1521.00	1005.17	.7937	0.000	7.741	14.53	.0410	0.000
14	6.7433	853.536	853.553	0.000	518.7	398.4	1521.00	987.65	.8110	0.000	6.196	17.52	.0404	0.000
15	7.0931	860.249	860.249	0.000	518.7	396.2	1521.00	970.60	.8270	0.000	4.684	22.56	.0399	0.000
16	7.4339	876.597	875.092	0.000	518.7	394.0	1521.00	960.04	.8383	0.000	3.272	32.36	.0396	0.000
17	7.7834	878.990	878.990	0.000	518.7	393.3	1521.00	955.95	.8424	0.000	1.497	59.00	.0395	0.000
18	7.9597	878.457	878.457	0.000	518.7	394.3	1521.00	955.33	.8420	0.000	1.417	91.05	.0395	0.000
19	8.1432	877.729	877.731	0.000	518.7	394.6	1521.00	958.21	.8401	0.000	.661	174.83	.0395	0.000
20	8.3211	874.756	874.759	0.000	518.7	395.3	1521.00	961.44	.8369	0.000	.403	570.70	.0396	0.000
21	8.5073	873.543	873.843	0.000	518.7	395.6	1521.00	965.62	.8324	0.000	0.000	0.00	.0398	0.000

STATION 12
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GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	3.0363	637.445	609.782	[illegible].745	535.3	501.4	1695.19	1348.87	.5809	15.941	32.461	95355.88	.0505	0.000
2	3.1841	654.099	625.501	187.995	536.3	500.7	1706.12	1341.30	.5966	15.703	31.304	-65.87	.0502	0.000
3	3.5642	689.403	662.317	191.348	538.7	499.2	1732.35	1326.37	.6297	15.114	28.203	-34.96	.0498	0.000
4	3.8075	706.403	680.164	190.740	540.0	498.5	1746.06	1319.37	.6457	15.665	26.240	-37.13	.0496	0.000
5	4.0727	721.354	695.245	188.780	541.3	498.0	1759.09	1313.59	.6597	15.171	24.143	-43.86	.0495	0.000
6	4.3536	738.056	713.968	187.023	542.6	497.3	1772.93	1306.20	.6754	14.679	22.017	-52.79	.0493	0.000
7	4.6454	754.170	730.955	185.681	544.0	496.7	1787.68	1299.73	.6906	14.253	19.937	-64.78	.0491	0.000
8	4.9444	768.062	745.612	184.343	545.5	496.4	1802.49	12[illegible].49	.7035	13.887	17.909	-81.01	.0489	0.000
9	5.2484	781.288	759.644	182.626	546.8	496.0	1816.49	1291.09	.7159	13.518	15.971	-114.75	.0488	0.000
10	5.5551	791.879	771.089	180.258	548.1	495.9	1828.86	1288.30	.7257	13.158	14.127	-237.60	.0487	0.000
11	5.8659	799.231	779.311	177.329	549.2	496.1	1839.41	1287.85	.7323	12.819	12.345	-3629.72	.0487	0.000
12	6.1808	804.645	785.601	174.023	550.3	436.4	1845.20	1288.34	.7370	12.490	10.600	433.14	.0487	0.000
13	6.4977	807.628	789.426	170.498	551.2	496.9	1855.29	1290.48	.7393	12.187	8.877	217.24	.0487	0.000
14	6.8182	807.093	789.653	166.875	552.1	497.9	1860.72	1295.70	.7381	11.933	7.180	142.63	.0488	0.000
15	7.1425	802.854	786.117	163.229	552.9	499.3	1864.33	1304.10	.7333	11.730	5.527	100.59	.0490	0.000
16	7.4727	794.960	778.772	159.613	553.7	501.1	1865.86	1315.53	.7247	11.583	3.948	75.30	.0492	0.000
17	7.8095	784.038	768.346	156.077	554.5	503.3	1864.97	1328.80	.7132	11.483	2.487	65.45	.0495	0.000
18	7.9789	777.690	762.218	154.356	554.9	504.5	1863.52	1335.72	.7065	11.448	1.809	64.16	.0497	0.000
19	8.1505	770.650	755.375	152.673	555.2	505.8	1861.48	1342.99	.6993	11.426	1.168	68.61	.0498	0.000
20	8.3245	762.322	747.211	151.031	555.6	507.3	1859.00	1351.39	.6907	11.427	.568	93.35	.0500	0.000
21	8.5000	751.551	736.545	149.433	556.0	509.0	1856.21	1362.35	.6798	11.469	0.000	0.00	.0502	0.000

STATION 12 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM-LINE	RELATIVE GAS ANGLES OPT.IN.	RELATIVE GAS ANGLES INLET	RELATIVE GAS ANGLES OUTLET	RELATIVE VELOCITIES INLET	RELATIVE VELOCITIES OUTLET	RELATIVE MACH NO.S INLET	RELATIVE MACH NO.S OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	BLADE SPEEDS OUTLET	STREAM-LINE
1		-40.176	-29.862	725.270	703.138	.6665	.6408	.0067	.969	0.0000	.1685	467.9	535.8	1
2		-41.653	-30.832	748.052	729.613	.6877	.6654	.0072	.975	0.0000	.1501	497.2	561.9	2
3		-44.498	-33.456	817.058	793.851	.7529	.7251	.0085	.972	0.0000	.1339	572.7	629.0	3
4		-45.811	35.278	865.353	833.168	.7991	.7615	.0094	.963	0.0000	.1354	620.5	671.9	4
5		-47.006	-37.277	918.724	874.989	.8504	.8002	.0104	.952	0.0000	.1399	672.0	718.7	5
6		-48.092	-39.151	975.176	920.674	.9051	.8425	.0114	.944	0.0000	.1416	725.7	768.3	6
7		-49.079	-40.942	1033.701	967.677	.9623	.8861	.0125	.936	0.0000	.1436	781.1	819.8	7
8		-49.979	-42.708	1093.730	1014.682	1.0214	.9294	.0136	.928	0.0000	.1465	837.6	872.5	8
9		-50.803	-44.388	1154.923	1063.004	1.0821	.9740	.0148	.920	0.0000	.1476	895.0	926.2	9
10		-51.564	-46.063	1216.999	1111.289	1.1443	1.0134	.0162	.913	0.0000	.1486	953.3	980.5	10
11		-52.281	-47.752	1279.490	1159.103	1.2073	1.0620	.0179	.906	0.0000	.1495	1012.1	1035.3	11
12		-52.980	-49.404	1341.856	1207.278	1.2707	1.1058	.0198	.900	0.0000	.1490	1071.4	1090.7	12
13		-53.694	-51.037	1403.523	1255.408	1.3337	1.1492	.0222	.894	0.0000	.1473	1131.1	1146.7	13
14		-54.460	-52.693	1463.842	1302.868	1.3952	1.1915	.0251	.890	0.0000	.1447	1191.1	1203.2	14
15		-55.315	-54.380	1522.227	1349.774	1.4543	1.2327	.0287	.887	0.0000	.1410	1251.7	1260.5	15
16		-56.285	-56.103	1578.303	1396.372	1.5102	1.2729	.0334	.885	0.0000	.1359	1312.8	1318.7	16
17		-57.378	-57.837	1632.070	1443.350	1.5626	1.3129	.0393	.884	0.0000	.1291	1374.6	1378.0	17
18		-57.967	-58.700	1658.173	1467.148	1.5876	1.3329	.0426	.885	0.0000	.1251	1405.7	1408.0	18
19		58.532	-59.564	1683.864	1491.123	1.6117	1.3530	.0467	.886	0.0000	.1208	1437.0	1438.4	19
20		-59.217	-60.449	1709.230	1515.006	1.6352	1.3727	.0508	.886	0.0300	.1166	1468.4	1469.0	20
21		-59.866	-61.393	1734.386	1538.291	1.6582	1.3914	.0550	.887	0.3000	.1130	1500.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	1.1145	.0319	.9847	1.1145	.0319	.9847
2	1.1217	.0339	.9836	1.1217	.0339	.9836
3	1.1390	.0386	.9802	1.1390	.0386	.9802
4	1.1483	.0411	.9774	1.1483	.0411	.9774
5	1.1565	.0435	.9740	1.1565	.0435	.9740
6	1.1656	.0461	.9704	1.1656	.0461	.9704
7	1.1753	.0488	.9667	1.1753	.0488	.9667
8	1.1851	.0516	.9626	1.1851	.0516	.9626
9	1.1943	.0543	.9582	1.1943	.0543	.9582
10	1.2024	.0567	.9530	1.2024	.0567	.9530
11	1.2093	.0589	.9468	1.2093	.0589	.9468
12	1.2151	.0609	.9394	1.2151	.0609	.9394
13	1.2193	.0627	.9304	1.2193	.0627	.9304
14	1.2234	.0644	.9197	1.2234	.0644	.9197
15	1.2257	.0660	.9063	1.2257	.0660	.9063
16	1.2267	.0675	.8896	1.2267	.0675	.8896
17	1.2261	.0690	.8685	1.2261	.0690	.8685
18	1.2252	.0697	.8561	1.2252	.0697	.8561
19	1.2239	.0705	.8426	1.2239	.0705	.8426
20	1.2222	.0712	.8283	1.2222	.0712	.8283
21	1.2204	.0719	.8135	1.2204	.0719	.8136

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	1.2052	1.2052
DELTA T ON T	.0601	.0601
ISEN. EFFICY.	.9111	.9111

STATION 13
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	MERIDNL.	TANGENTL.	TEMPERATURES TOTAL	STATIC	PRESSURES TOTAL	STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	3.3893	742.628	650.887	357.551	554.3	508.4	1912.75	1413.22	.6721	28.781	32.461	0.00	.0521	0.000
2	3.5238	754.252	664.109	357.567	555.7	508.4	1923.13	1412.33	.6627	28.299	30.936	-262.64	.0521	0.000
3	3.8717	779.957	692.652	353.565	559.5	508.8	1972.86	1415.30	.7056	27.369	27.381	-67.65	.0522	0.000
4	4.0953	794.695	708.051	360.750	562.1	509.5	2003.49	1420.71	.7184	25.939	25.322	-45.34	.0523	0.000
5	4.3387	807.976	721.790	363.104	565.0	510.6	2037.29	1429.83	.7297	25.735	23.218	-36.93	.0525	0.000
6	4.5963	819.347	734.298	363.565	567.8	511.9	2069.92	1440.18	.7390	25.337	21.086	-31.75	.0528	0.000
7	4.8642	827.730	744.541	361.657	570.4	513.3	2099.67	1452.01	.7455	25.908	18.982	-27.20	.0530	0.000
8	5.1339	832.351	751.403	358.046	572.7	515.1	2126.22	1466.36	.7484	25.478	16.980	-25.60	.0534	0.000
9	5.4195	834.158	755.733	353.136	574.9	517.0	2149.75	1482.25	.7487	25.045	15.103	-24.95	.0539	0.000
10	5.7047	834.475	758.742	347.359	576.9	518.9	2170.52	1498.17	.7475	24.599	13.351	-24.70	.0541	0.000
11	5.9937	834.133	761.344	340.932	578.7	520.8	2188.23	1512.64	.7460	24.123	11.639	-25.86	.0545	0.000
12	6.2865	832.334	762.379	334.003	580.4	522.7	2202.30	1526.68	.7429	23.659	10.081	-29.32	.0548	0.000
13	6.5834	828.325	761.181	326.689	581.9	524.8	2212.04	1540.65	.7379	23.228	8.501	-35.09	.0551	0.000
14	6.8852	821.626	757.124	319.111	583.2	527.0	2216.87	1554.87	.7303	22.854	6.929	-42.27	.0553	0.000
15	7.1929	811.944	743.818	311.518	584.5	529.6	2217.34	1570.09	.7200	22.561	5.361	-46.21	.0556	0.000
16	7.5075	799.256	733.120	304.158	585.8	532.6	2214.66	1587.10	.7067	22.368	3.808	-42.30	.0559	0.000
17	7.8302	783.832	723.253	297.323	587.1	535.9	2210.34	1606.47	.6909	22.292	2.320	-34.76	.0562	0.000
18	7.9946	775.544	717.566	294.175	587.8	537.7	2208.06	1616.75	.6825	22.291	1.628	-32.52	.0564	0.000
19	8.1611	767.132	709.710	291.198	588.5	539.5	2205.74	1627.07	.6740	22.308	.996	-33.88	.0566	0.000
20	8.3297	758.932	702.868	288.341	589.2	541.3	2203.34	1636.67	.6657	22.328	.448	-46.21	.0567	0.000
21	8.5000	752.351	696.834	285.661	590.0	542.9	2200.78	1644.47	.6589	22.310	0.000	0.00	.0568	0.000

STATION 13 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN. INLET	OUTLET	RELATIVE VELOCITIES INLET	OUTLET	RELATIVE MACH NO.S INLET	OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	OUTLET	STREAM -LINE
1	-29.859	-20.288	703.121	593.939	.6408	.6281	.0136	.987	0.0000	.1500	535.8	598.1	1
2	-30.830	-21.704	729.597	714.754	.6654	.6469	.0144	.980	0.0000	.1532	561.9	621.8	2
3	-33.455	-25.117	793.837	764.987	.7251	.6921	.0167	.964	0.0000	.1601	629.0	683.2	3
4	-35.277	-27.078	833.157	795.218	.7615	.7189	.0181	.954	0.0000	.1641	671.9	722.7	4
5	-37.276	-29.151	874.977	826.471	.8002	.7464	.0198	.945	0.0000	.1687	718.7	765.7	5
6	-39.158	-31.367	920.661	859.983	.8425	.7757	.0217	.934	0.0000	.1735	768.3	811.1	6
7	-40.941	-33.711	967.663	895.045	.8861	.8062	.0239	.925	0.0000	.1759	819.8	858.4	7
8	-42.707	-36.146	1014.666	930.520	.9294	.8367	.0263	.917	0.0000	.1767	872.5	906.9	8
9	-44.387	-38.599	1062.991	966.984	.9740	.8679	.0289	.910	0.0000	.1770	926.2	956.4	9
10	-46.062	-40.991	1111.260	1005.202	1.0183	.9005	.0315	.905	0.0000	.1744	980.5	1006.7	10
11	-47.752	-43.273	1159.039	1045.662	1.0620	.9351	.0345	.902	0.0000	.1682	1035.3	1057.7	11
12	-49.404	-45.484	1207.260	1087.384	1.1058	.9706	.0384	.901	0.0000	.1608	1090.7	1109.4	12
13	-51.037	-47.650	1255.419	1129.915	1.1492	1.0066	.0434	.900	0.0000	.1525	1146.7	1161.8	13
14	-52.694	-49.798	1302.890	1172.957	1.1916	1.0426	.0501	.900	0.0000	.1431	1203.2	1215.0	14
15	-54.381	-51.944	1349.806	1216.358	1.2327	1.0786	.0584	.901	0.0000	.1332	1260.5	1269.3	15
16	-55.103	-54.089	1396.412	1260.154	1.2730	1.1143	.0678	.902	0.0000	.1235	1318.7	1324.9	16
17	-57.838	-56.226	1443.398	1304.563	1.3129	1.1500	.0761	.904	0.0000	.1148	1378.0	1381.8	17
18	-58.701	-57.273	1467.199	1327.278	1.3330	1.1681	.0834	.905	0.0000	.1108	1408.0	1410.8	18
19	-59.565	-58.296	1491.178	1350.465	1.3530	1.1865	.0889	.906	0.0000	.1068	1438.4	1440.2	19
20	-60.458	-59.281	1515.062	1374.384	1.3728	1.2055	.0944	.907	0.0000	.1024	1469.0	1469.9	20
21	-61.394	-60.179	1538.349	1399.657	1.3915	1.2259	.1000	.910	0.0000	.0966	1500.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	1.1283	.0355	.9868	1.2576	.0680	.9856
2	1.1307	.0362	.9856	1.2683	.0713	.9844
3	1.1365	.0385	.9823	1.2971	.0786	.9809
4	1.1479	.0409	.9805	1.3172	.0837	.9785
5	1.1581	.0438	.9784	1.3394	.0892	.9757
6	1.1675	.0464	.9753	1.3609	.0946	.9723
7	1.1745	.0484	.9711	1.3805	.0996	.9682
8	1.1796	.0500	.9660	1.3979	.1042	.9635
9	1.1835	.0513	.9604	1.4134	.1084	.9582
10	1.1868	.0525	.9545	1.4270	.1122	.9525
11	1.1896	.0536	.9477	1.4387	.1157	.9459
12	1.1926	.0547	.9390	1.4473	.1189	.9376
13	1.1923	.0556	.9268	1.4543	.1218	.9268
14	1.1914	.0564	.9099	1.4575	.1244	.9128
15	1.1893	.0571	.8891	1.4578	.1269	.8956
16	1.1869	.0579	.8668	1.4561	.1293	.8758
17	1.1852	.0588	.8459	1.4532	.1318	.8543
18	1.1849	.0593	.8369	1.4517	.1332	.8432
19	1.1849	.0599	.8298	1.4502	.1346	.8320
20	1.1852	.0605	.8217	1.4486	.1360	.8207
21	1.1856	.0612	.8148	1.4469	.1375	.8093

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	1.1817	1.4241
DELTA T ON T	.0539	.1172
ISEN. EFFICY.	.9057	.9062

STATION 14
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	MERIDNL.	TANGENTL.	TEMPERATURES TOTAL	STATIC	PRESSURES TOTAL	STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	3.7385	847.930	673.186	508.369	574.6	514.7	2166.04	1473.76	.7627	35.888	32.461	0.00	.0537	0.000
2	3.8564	853.937	685.285	508.105	576.2	515.6	2185.81	1481.10	.7674	36.515	30.805	-308.62	.0539	0.000
3	4.1649	867.609	702.592	509.027	581.0	518.3	2246.06	1506.26	.7777	35.923	26.900	-90.76	.0545	0.000
4	4.3652	880.477	713.377	516.075	584.9	520.3	2296.36	1525.04	.7877	35.883	24.613	-62.40	.0550	0.000
5	4.5849	834.697	724.469	525.393	589.4	522.8	2355.77	1547.84	.7985	35.930	22.350	-51.25	.0555	0.000
6	4.8182	901.811	731.669	527.185	593.3	525.6	2406.37	1574.55	.8027	35.774	20.132	-49.71	.0562	0.000
7	5.0612	901.354	734.793	522.033	596.3	528.7	2443.44	1603.16	.8008	35.392	17.935	-49.20	.0569	0.000
8	5.3127	836.032	734.908	512.625	598.7	531.9	2470.57	1632.39	.7929	34.897	15.867	-44.75	.0576	0.000
9	5.5712	889.037	733.711	502.158	600.9	535.1	2493.18	1661.1[illegible]	.7844	34.388	13.904	-36.86	.0582	0.000
10	5.8357	862.925	732.319	493.219	603.2	538.4	2516.82	1689.70	.7765	33.961	12.054	-29.69	.0589	0.000
11	6.1055	877.157	730.455	485.688	605.8	541.8	2541.34	1718.52	.7691	33.621	10.332	-24.49	.0595	0.000
12	6.3805	871.737	728.628	478.678	608.4	545.1	2564.54	1746.07	.7620	33.303	8.741	-21.35	.0601	0.000
13	6.6604	865.489	725.879	471.350	610.9	548.6	2584.04	1772.57	.7541	32.998	7.257	-20.26	.0606	0.000
14	6.9455	856.729	720.790	463.084	613.2	552.1	2597.54	1798.73	.7441	32.720	5.841	-21.16	.0611	0.000
15	7.2372	845.366	713.062	454.077	615.2	555.7	2603.58	1823.67	.7318	32.489	4.448	-24.56	.0615	0.000
16	7.5354	831.316	702.357	444.725	617.1	559.6	2600.44	1846.14	.7171	32.342	3.059	-32.79	.0619	0.000
17	7.8453	814.723	688.622	435.399	619.0	563.8	2585.63	1863.83	.7002	32.304	1.707	-54.36	.0620	0.000
18	8.0039	805.453	680.537	430.859	620.0	566.0	2572.99	1870.11	.6909	32.339	1.087	-81.01	.0620	0.000
19	8.1657	795.637	671.723	426.412	621.0	568.3	2557.07	1874.59	.6811	32.408	.555	-144.71	.0619	0.000
20	8.3310	785.293	662.191	422.049	622.0	570.7	2538.43	1877.60	.6708	32.512	.166	-392.38	.0617	0.000
21	8.5000	774.335	651.972	417.764	623.0	573.1	2517.82	1879.54	.6601	32.651	0.000	0.00	.0615	0.000

STATION 14 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	INLET	OUTLET	RELATIVE VELOCITIES INLET	OUTLET	RELATIVE MACH NO.S INLET	OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	OUTLET	STREAM -LINE
1		-20.284	-12.537	693.918	694.752	.6280	.6249	.0209	1.001	0.0000	.1408	598.1	659.7	1
2		-21.700	-14.106	714.763	707.624	.6469	.6360	.0223	.990	0.0000	.1499	621.8	680.5	2
3		-25.114	-17.829	764.968	738.037	.6920	.6615	.0257	.965	0.0000	.1704	683.2	735.0	3
4		-27.076	-19.618	795.201	757.338	.7189	.6775	.0274	.952	0.0000	.1787	722.7	770.3	4
5		-29.149	-21.413	820.455	778.185	.7464	.6946	.0292	.942	0.0000	.1845	765.7	809.1	5
6		-31.365	-23.624	859.908	799.821	.7757	.7119	.0315	.930	0.0000	.1911	811.1	850.2	6
7		-33.710	-26.797	895.031	823.139	.8001	.7306	.0346	.920	0.0000	.1951	858.4	893.1	7
8		-36.145	-30.036	930.509	848.937	.8367	.7512	.0383	.912	0.0000	.1946	906.9	937.5	8
9		-38.598	-33.248	965.975	877.325	.8679	.7740	.0428	.907	0.0000	.1904	956.4	983.1	9
10		-40.930	-36.233	1005.198	907.836	.9005	.7985	.0480	.903	0.0000	.1847	1006.7	1029.8	10
11		-43.273	-39.013	1045.665	940.089	.9351	.8242	.0538	.899	0.0000	.1797	1057.7	1077.5	11
12		-45.484	-41.617	1087.397	974.623	.9706	.8518	.0603	.896	0.0000	.1732	1109.4	1126.0	12
13		-47.651	-44.123	1129.939	1011.193	1.0066	.8810	.0674	.895	0.0000	.1659	1161.8	1175.4	13
14		-49.739	-46.614	1172.991	1049.322	1.0427	.9113	.0752	.895	0.0000	.1583	1215.0	1225.7	14
15		-51.945	-49.095	1216.400	1088.966	1.0786	.9427	.0848	.895	0.0000	.1496	1269.3	1277.1	15
16		-54.090	-51.570	1263.203	1129.983	1.1143	.9748	.0972	.897	0.0000	.1391	1324.9	1329.9	16
17		-56.227	-54.035	1304.636	1172.529	1.1500	1.0077	.1143	.899	0.0000	.1256	1381.8	1384.5	17
18		-57.274	-55.265	1327.334	1194.377	1.1681	1.0245	.1250	.900	0.0000	.1181	1410.8	1412.4	18
19		-58.297	-56.491	1350.523	1216.747	1.1865	1.0416	.1371	.901	0.0000	.1100	1440.2	1441.0	19
20		-59.282	-57.714	1374.445	1239.723	1.2056	1.0590	.1502	.902	0.0000	.1020	1469.9	1470.2	20
21		-60.151	-58.932	1399.721	1263.381	1.2259	1.0770	.1640	.903	0.0000	.0948	1500.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	1.1324	.0366	.9873	1.4241	.1078	.9859
2	1.1336	.0370	.9859	1.4377	.1118	.9846
3	1.1385	.0384	.9813	1.4767	.1201	.9808
4	1.1462	.0405	.9804	1.5098	.1276	.9786
5	1.1563	.0432	.9794	1.5488	.1363	.9763
6	1.1525	.0450	.9773	1.5821	.1438	.9732
7	1.1637	.0455	.9732	1.6065	.1496	.9659
8	1.1620	.0453	.9667	1.6243	[illegible]	.9634
9	1.1598	.0452	.9575	1.6392	.1584	.9568
10	1.1535	.0457	.9457	1.6547	.1630	.9490
11	1.1614	.0468	.9327	1.6708	.1679	.9401
12	1.1645	.0483	.9200	1.6881	.1730	.9302
13	1.1682	.0499	.9094	1.6989	.1778	.9191
14	1.1717	.0513	.9016	1.7078	.1821	.9066
15	1.1742	.0525	.8930	1.7118	.1861	.8914
16	1.1742	.0536	.8760	1.7097	.1898	.8719
17	1.1598	.0544	.8415	1.7000	.1935	.8457
18	1.1653	.0548	.8146	1.6916	.1953	.8293
19	1.1593	.0552	.7812	1.6612	.1972	.8109
20	1.1521	.0556	.7427	1.6649	.1991	.7909
21	1.1441	.0559	.7005	1.6554	.2011	.7698

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	1.1629	1.6560
DELTA T ON T	.0494	.1725
ISEN. EFFICY.	.8905	.8983

STATION 15
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	MERIDNL.	TANGENTL.	TEMPERATURES TOTAL	STATIC	PRESSURES TOTAL	STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	4.0894	991.534	724.568	676.949	600.0	518.2	2513.66	1507.08	.8830	43.054	32.461	********	.0545	0.000
2	4.1897	989.492	722.574	676.004	601.9	520.4	2544.55	1528.81	.8852	43.033	31.009	71.66	.0551	0.000
3	4.4587	986.862	720.257	674.660	607.0	526.0	2615.01	1583.07	.8781	43.128	27.442	25.13	.0564	0.000
4	4.6349	990.915	722.829	674.885	610.6	529.2	2663.53	1613.94	.8773	43.036	24.883	34.05	.0572	0.000
5	4.8386	990.279	725.793	673.704	614.3	532.7	2714.69	1647.69	.8756	42.869	22.430	44.59	.0580	0.000
6	5.0393	986.235	725.177	668.415	617.6	536.7	2759.69	1687.43	.8688	42.668	20.106	55.05	.0590	0.000
7	5.2584	978.212	722.608	659.345	620.5	540.9	2795.12	1728.56	.8583	42.379	17.856	64.19	.0599	0.000
8	5.4856	967.692	718.963	647.704	623.0	545.1	2825.07	1769.39	.8456	42.015	15.660	91.41	.0609	0.000
9	5.7193	955.449	714.022	634.867	625.3	549.4	2848.33	1809.74	.8319	41.642	13.528	158.12	.0618	0.000
10	5.9607	943.736	709.844	621.891	627.6	553.5	2868.02	1846.83	.8187	41.226	11.470	1449.47	.0626	0.000
11	6.2083	933.404	707.003	609.417	629.6	557.3	2884.63	1879.71	.8069	40.761	9.548	-213.92	.0633	0.000
12	6.4630	923.314	704.090	597.298	632.1	561.1	2898.25	1910.18	.7954	40.309	7.798	-105.84	.0638	0.000
13	6.7249	912.936	700.295	585.789	634.4	565.0	2903.06	1939.30	.7838	39.912	6.235	-73.89	.0644	0.000
14	6.9946	902.253	695.315	575.822	636.8	569.1	2915.90	1967.23	.7719	39.591	4.854	-63.73	.0648	0.000
15	7.2723	890.593	688.418	565.020	639.4	573.4	2919.56	1993.45	.7590	39.378	3.627	-71.05	.0652	0.000
16	7.5591	877.253	678.739	555.766	642.1	578.0	2913.37	2016.45	.7446	39.311	2.529	-142.90	.0654	0.000
17	7.8571	861.160	664.930	547.234	645.0	583.3	2893.27	2034.33	.7277	39.454	1.533	209.37	.0654	0.000
18	8.0111	851.538	655.758	543.229	646.5	586.2	2876.15	2040.73	.7177	39.538	1.076	92.39	.0653	0.000
19	8.1692	840.751	644.943	539.362	648.1	589.3	2854.26	2045.40	.7068	39.906	.653	70.89	.0651	0.000
20	8.3313	828.732	632.403	535.595	649.8	592.6	2828.25	2048.71	.6947	40.262	.280	85.10	.0648	0.000
21	8.5080	815.469	618.127	531.393	651.6	596.2	2799.02	2051.12	.6816	40.712	0.000	0.00	.0645	0.000

STATION 15 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	INLET	OUTLET	RELATIVE VELOCITIES INLET	OUTLET	RELATIVE MACH NO.S INLET	OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	OUTLET	STREAM -LINE
1		-12.534	-3.506	694.743	725.926	.6249	.6508	.0255	1.045	0.0000	.0751	659.7	721.5	1
2		-14.184	-5.008	707.616	725.334	.6360	.6489	.0276	1.025	0.0000	.1030	680.5	739.3	2
3		-17.828	-8.845	738.833	728.926	.6615	.6486	.0332	.988	0.0000	.1494	735.0	786.8	3
4		-19.617	-11.191	757.334	736.838	.6775	.6537	.0363	.973	0.0000	.1620	770.3	817.9	4
5		-21.412	-13.834	778.180	747.476	.6945	.6609	.0394	.961	0.0000	.1700	809.1	852.5	5
6		-23.823	-16.948	799.816	758.100	.7119	.6678	.0430	.948	0.0000	.1784	854.2	889.4	6
7		-26.796	-20.393	823.193	770.928	.7306	.6765	.0473	.937	0.0000	.1836	893.1	928.8	7
8		-30.035	-24.018	848.899	787.115	.7512	.6880	.0522	.927	0.0000	.1850	937.5	968.8	8
9		-33.247	-27.688	877.317	806.299	.7748	.7021	.0579	.919	0.0030	.1841	983.1	1009.4	9
10		-36.232	-31.202	907.879	829.831	.7985	.7139	.0643	.914	0.0000	.1782	1029.8	1051.9	10
11		-39.013	-34.516	940.086	858.047	.8242	.7417	.0717	.913	0.0000	.1670	1077.5	1095.6	11
12		-41.617	-37.653	974.624	889.313	.8518	.7661	.0800	.912	0.0000	.1549	1126.0	1140.5	12
13		-44.124	-40.637	1011.200	922.835	.8811	.7923	.0893	.913	0.0000	.1432	1175.4	1186.8	13
14		-46.615	-43.460	1049.336	956.234	.9114	.8137	.1000	.913	0.0000	.1315	1225.7	1234.3	14
15		-49.096	-46.219	1088.986	994.955	.9427	.8479	.1131	.914	0.0000	.1205	1277.1	1283.3	15
16		-51.571	-48.905	1130.812	1032.619	.9748	.8765	.1301	.914	0.0000	.1100	1329.9	1334.8	16
17		-54.036	-51.612	1172.569	1070.759	1.0078	.9048	.1528	.913	0.0000	.1005	1384.5	1386.5	17
18		-55.266	-53.007	1194.423	1089.611	1.0245	.9186	.1670	.912	0.0000	.0962	1412.4	1413.7	18
19		-56.493	-54.440	1216.799	1109.001	1.0416	.9323	.1830	.911	0.0000	.0922	1441.0	1441.6	19
20		-57.716	-55.917	1239.782	1128.499	1.0591	.9460	.2004	.910	0.0000	.0884	1470.2	1470.3	20
21		-58.934	-57.439	1263.445	1148.517	1.0770	.9599	.2190	.909	0.0000	.0849	1500.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	1.1628	.0442	.9947	1.6559	.1568	.9882
2	1.1636	.0445	.9932	1.6729	.1604	.9868
3	1.1643	.0449	.9883	1.7193	.1704	.9824
4	1.1599	.0440	.9841	1.7512	.1771	.9795
5	1.1524	.0422	.9787	1.7848	.1843	.9762
6	1.1468	.0410	.9725	1.8144	.1907	.9722
7	1.1443	.0405	.9668	1.8383	.1963	.9673
8	1.1435	.0407	.9598	1.8574	.2012	.9613
9	1.1424	.0400	.9511	1.8727	.2056	.9542
10	1.1395	.0404	.9414	1.8856	.2099	.9458
11	1.1351	.0397	.9298	1.8965	.2142	.9360
12	1.1301	.0389	.9136	1.9055	.2186	.9248
13	1.1258	.0385	.8947	1.9126	.2231	.9119
14	1.1229	.0386	.8725	1.9178	.2278	.8972
15	1.1214	.0393	.8466	1.9195	.2327	.8796
16	1.1203	.0404	.8158	1.9154	.2379	.8572
17	1.1198	.0419	.7779	1.9022	.2435	.8278
18	1.1178	.0428	.7551	1.8918	.2465	.8096
19	1.1162	.0437	.7295	1.8766	.2495	.7891
20	1.1142	.0447	.7014	1.8595	.2527	.7668
21	1.1117	.0457	.6718	1.8402	.2561	.7438

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	1.1305	1.8723
DELTA T ON T	.0410	.2286
ISEN. EFFICY.	.8684	.8891

STATION 16
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	4.4612	1172.697	713.683	930.519	640.6	526.2	3163.85	1588.28	1.0433	52.513	32.461	********	.0566	0.000
2	4.5378	1158.208	712.106	913.428	640.4	528.8	3158.05	1614.89	1.0278	52.060	31.031	-51.15	.0573	0.000
3	4.7659	1116.292	704.604	865.518	639.9	536.2	3139.91	1690.60	.9838	50.861	27.234	-13.18	.0591	0.000
4	4.9314	1091.433	703.660	834.320	639.5	540.4	3126.58	1733.52	.9581	49.856	25.406	-366.99	.0602	0.000
5	5.1054	1071.038	707.798	803.831	639.2	543.8	3112.28	1766.40	.9373	48.635	23.253	31.62	.0609	0.000
6	5.2811	1051.648	710.529	775.314	638.9	546.9	3096.99	1796.29	.9177	47.497	20.789	36.16	.0616	0.000
7	5.4646	1031.302	710.228	747.769	638.7	550.2	3080.48	1826.97	.8972	46.475	18.399	49.15	.0623	0.000
8	5.6573	1010.493	707.654	721.334	638.6	553.6	3063.20	1857.67	.8764	45.549	16.113	49.72	.0629	0.000
9	5.8612	990.033	703.974	696.?97	638.5	557.0	3045.69	1887.03	.8561	44.682	13.944	42.48	.0635	0.000
10	6.0759	971.096	700.250	672.514	638.8	560.3	3028.59	1913.61	.8372	43.855	11.917	30.38	.0641	0.000
11	6.3036	954.039	696.927	651.524	639.3	563.6	3012.03	1936.63	.8201	43.072	10.024	24.21	.0644	0.000
12	6.5403	938.604	693.462	632.526	640.2	566.9	2995.60	1956.53	.8045	42.369	8.272	21.56	.0647	0.000
13	6.7850	924.057	688.923	615.891	641.5	570.4	2978.60	1974.30	.7896	41.797	6.670	21.01	.0649	0.000
14	7.0403	909.665	682.235	601.703	643.1	574.3	2969.43	1991.09	.7746	41.411	5.223	22.41	.0650	0.000
15	7.3057	895.234	672.752	590.725	645.5	578.7	2942.27	2007.98	.7595	41.286	3.943	26.00	.0651	0.000
16	7.5819	881.350	660.033	584.105	648.8	584.1	2926.18	2025.01	.7442	41.508	2.827	34.31	.0651	0.000
17	7.8713	868.440	643.457	583.191	653.5	590.8	2914.19	2046.18	.7291	42.186	1.839	56.38	.0650	0.000
18	8.0215	862.476	633.493	585.280	656.6	594.7	2910.17	2057.30	.7217	42.735	1.377	85.53	.0649	0.000
19	8.1760	856.493	621.935	588.515	660.1	599.0	2906.72	2069.17	.7141	43.430	.919	153.20	.0648	0.000
20	8.3353	850.074	608.734	593.355	664.0	603.8	2902.85	2081.71	.7060	44.267	.456	399.95	.0647	0.000
21	8.5003	842.542	593.531	598.418	668.1	609.0	2897.64	2094.71	.6970	45.235	0.000	0.00	.0645	0.000

STATION 16 IS AT THE EXIT OF A BLADE ROW ROTATING AT 20222.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	RELATIVE GAS ANGLES INLET	RELATIVE GAS ANGLES OUTLET	RELATIVE VELOCITIES INLET	RELATIVE VELOCITIES OUTLET	RELATIVE MACH NO.S INLET	RELATIVE MACH NO.S OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	BLADE SPEEDS OUTLET	STREAM -LINE
1		-3.517	11.341	725.335	727.902	.6508	.6476	.0329	1.003	0.0000	.1637	721.5	787.3	1
2		-5.018	8.980	725.345	720.942	.6489	.6398	.0348	.994	0.0000	.1722	739.3	800.8	2
3		-8.851	2.004	728.938	705.035	.6486	.6213	.0404	.967	0.0000	.2079	786.8	841.0	3
4		-11.134	-2.929	736.847	704.580	.6537	.6185	.0447	.956	0.0000	.2229	817.9	870.2	4
5		-13.835	-7.615	747.479	714.434	.6609	.6252	.0496	.956	0.0000	.2112	852.5	900.9	5
6		-16.947	-12.431	756.096	727.587	.6678	.6349	.0547	.960	0.0000	.1851	889.4	931.9	6
7		-20.391	-16.935	770.918	742.501	.6764	.6468	.0600	.963	0.0000	.1588	928.0	964.3	7
8		-24.016	-21.375	787.101	759.924	.6880	.6591	.0658	.965	0.0000	.1346	968.0	998.4	8
9		-27.678	-25.652	806.283	760.941	.7020	.6753	.0724	.969	0.0000	.1096	1009.4	1034.3	9
10		-31.200	-29.707	829.674	806.204	.7199	.6950	.0803	.971	0.0000	.0877	1051.9	1072.4	10
11		-34.514	-33.474	858.027	835.506	.7417	.7182	.0895	.974	0.0000	.0687	1095.6	1112.4	11
12		-37.651	-36.949	889.289	867.724	.7661	.7437	.1006	.976	0.0000	.0511	1140.5	1154.2	12
13		-40.635	-40.172	922.805	901.534	.7922	.7704	.1136	.977	0.0000	.0352	1186.8	1197.5	13
14		-43.477	-43.205	958.203	935.966	.8197	.7970	.1292	.977	0.0000	.0219	1234.3	1242.5	14
15		-46.218	-46.076	994.930	969.730	.8479	.8226	.1479	.975	0.0000	.0121	1283.3	1289.2	15
16		-48.984	-48.797	1032.611	1001.982	.8765	.8460	.1708	.970	0.0000	.0073	1334.0	1338.0	16
17		-51.612	-51.392	1070.777	1031.250	.9048	.8658	.1991	.963	0.0000	.0083	1386.5	1389.0	17
18		-53.008	-52.657	1089.847	1044.358	.9186	.8739	.2157	.958	0.0000	.0112	1413.7	1415.6	18
19		-54.442	-53.934	1109.058	1056.538	.9323	.8809	.2338	.953	0.0000	.0154	1441.6	1442.8	19
20		-55.920	-55.253	1128.575	1068.032	.9461	.8870	.2534	.946	0.0000	.0207	1470.3	1470.9	20
21		-57.442	-56.642	1145.610	1079.409	.9600	.8926	.2740	.940	0.0000	.0263	1500.0	1500.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	1.2562	.0677	.9343	2.0501	.2351	.9897
2	1.2411	.0640	.9359	2.0763	.2347	.9865
3	1.2337	.0541	.9315	2.0644	.2326	.9843
4	1.1739	.0474	.9373	2.0556	.2330	.9808
5	1.1465	.0406	.9603	2.0462	.2324	.9763
6	1.1222	.0345	.9049	2.0362	.2316	.9711
7	1.1017	.0293	.9355	2.0253	.2314	.9649
8	1.0843	.0249	.9390	2.0139	.2311	.9576
9	1.0543	.0211	.9145	2.0024	.2311	.9490
10	1.0555	.0179	.5731	1.9912	.2315	.9367
11	1.0442	.0151	.6222	1.9803	.2326	.9263
12	1.0336	.0129	.7355	1.9695	.2343	.9115
13	1.0239	.0111	.4082	1.9553	.2367	.8939
14	1.0149	.0099	.4273	1.9464	.2393	.8730
15	1.0073	.0095	.2330	1.9344	.2444	.8463
16	1.0044	.0104	.1294	1.9239	.2506	.8191
17	1.0072	.0132	.1555	1.9160	.2600	.7846
18	1.0115	.0156	.2159	1.9133	.2659	.7556
19	1.0154	.0155	.2821	1.9111	.2726	.7451
20	1.0254	.0218	.3413	1.9065	.2631	.7237
21	1.0332	.0255	.3433	1.9051	.2661	.7015

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	1.0495	1.9659
DELTA T ON T	.0199	.2449
ISEN. EFFICY.	.6970	.8694

STATION 17
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	MERIDNL.	TANGNTL.	TEMPERATURES TOTAL	STATIC	PRESSURES TOTAL	STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	4.5534	1157.034	713.214	911.340	640.6	529.1	3163.95	1619.43	1.0270	51.908	32.154	-15.90	.0574	0.000
2	4.6412	1142.354	712.929	893.236	640.4	531.7	3153.05	1640.55	1.0114	51.435	30.535	-22.16	.0581	0.000
3	4.8593	1114.057	723.011	847.518	639.9	535.6	3139.91	1695.01	.9515	49.536	26.552	22.63	.0592	0.000
4	5.0153	1039.452	732.043	823.316	639.5	536.9	3125.58	1716.98	.9055	43.255	25.103	-23.38	.0598	0.000
5	5.1763	1051.349	735.793	792.454	639.2	541.9	3112.25	1745.37	.9463	47.125	23.152	-12.77	.0604	0.000
6	5.3543	1351.343	735.251	766.759	638.9	545.1	3390.99	1775.21	.9279	45.987	20.789	-20.00	.0611	0.000
7	5.5395	1042.350	735.431	737.574	638.7	546.3	3080.45	1504.99	.9684	45.048	18.471	-42.36	.0617	0.000
8	5.7542	1023.339	735.175	711.666	638.5	551.3	3353.20	1831.07	.8899	44.031	16.298	-125.53	.0623	0.000
9	5.9375	1006.322	735.093	687.261	636.5	554.3	3045.69	1855.25	.8723	43.074	14.272	363.41	.0628	0.000
10	6.1434	993.456	732.747	664.364	635.8	557.3	3023.59	1373.02	.8553	42.219	12.430	123.77	.0632	0.000
11	6.3634	973.143	729.933	644.794	639.3	560.5	3012.03	1899.93	.8389	41.496	10.713	77.12	.0636	0.000
12	6.5975	957.354	723.444	627.921	646.2	563.9	2995.60	1921.03	.8227	40.916	9.102	55.27	.0639	0.000
13	6.8345	941.712	716.155	611.510	641.5	567.6	2974.60	1941.35	.8066	40.493	7.586	43.80	.0641	0.000
14	7.0807	925.349	705.735	593.363	643.1	571.9	2960.43	1961.05	.7902	40.252	6.154	37.57	.0643	0.000
15	7.3373	910.534	694.511	593.172	645.5	570.5	2942.27	1980.68	.7737	40.249	4.812	36.17	.0644	0.000
16	7.6094	435.246	683.331	582.292	646.8	552.1	2925.19	2001.24	.7572	40.574	3.546	39.14	.0645	0.000
17	7.8859	851.540	661.410	592.037	653.5	555.3	2914.19	2024.03	.7409	41.348	2.334	49.63	.0645	0.000
18	8.0331	874.317	651.232	554.434	656.6	593.0	2910.17	2030.55	.7327	41.947	1.742	61.07	.0644	0.000
19	8.1835	857.365	637.417	564.265	660.1	597.5	2905.72	2050.35	.7241	42.704	1.157	84.25	.0644	0.000
20	8.3393	859.765	622.362	593.392	664.0	602.5	2902.85	2065.22	.7148	43.021	.575	146.30	.0643	0.000
21	8.5003	850.716	604.955	593.422	666.1	607.9	2597.64	2081.38	.7041	44.703	0.000	0.00	.0642	0.000

STATION 18
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GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	4.6435	1149.596	722.350	894.300	640.6	530.6	3163.65	1635.03	1.0194	51.071	30.312	-7.99	.0578	0.000
2	4.7345	1140.341	731.342	875.719	640.4	532.1	3159.05	1650.45	1.0094	50.134	28.953	-8.96	.0582	0.000
3	4.9675	1121.422	753.237	830.795	639.9	535.2	3139.91	1679.68	.9892	47.803	25.743	-10.31	.0589	0.000
4	5.1157	1108.957	763.440	804.329	639.5	537.2	3125.54	1697.55	.9764	46.494	23.833	-10.87	.0593	0.000
5	5.2777	1094.921	770.603	777.552	639.2	539.5	3112.28	1717.98	.9519	45.258	21.761	-12.19	.0597	0.000
6	5.4564	1079.583	775.301	751.271	638.9	541.9	3095.93	1739.86	.9464	44.038	19.699	-14.27	.0602	0.000
7	5.6321	1063.459	777.433	725.562	638.7	544.6	3080.48	1762.59	.9300	43.021	17.672	-17.37	.0607	0.000
8	5.8222	1046.546	777.533	700.443	638.6	547.3	3063.20	1785.56	.9131	42.034	15.742	-22.42	.0612	0.000
9	6.0282	1030.258	775.330	677.841	638.5	550.2	3045.69	1806.18	.8953	41.144	13.934	-30.84	.0616	0.000
10	6.2253	1013.982	772.561	655.717	638.8	553.2	3028.59	1830.24	.8798	40.366	12.252	-44.23	.0620	0.000
11	6.4332	998.115	767.747	637.306	639.3	556.4	3012.03	1851.86	.8635	39.718	10.084	-70.40	.0624	0.000
12	6.6603	982.470	761.220	621.122	640.2	559.9	2995.60	1873.11	.8473	39.213	9.219	-147.56	.0627	0.000
13	6.8935	950.775	732.754	606.325	641.5	563.7	2979.60	1894.11	.8310	38.854	7.847	3323.17	.0630	0.000
14	7.1277	950.757	742.057	594.300	643.1	567.9	2963.43	1914.92	.8142	38.692	6.553	139.34	.0632	0.000
15	7.3757	934.851	724.123	585.102	645.5	572.7	2942.27	1935.75	.7972	38.746	5.316	72.55	.0634	0.000
16	7.6343	919.715	713.746	580.034	646.6	576.4	2926.16	1957.10	.7804	39.100	4.106	51.34	.0635	0.000
17	7.9054	905.736	693.211	585.550	653.5	585.3	2914.19	1980.18	.7640	39.864	2.875	45.12	.0635	0.000
18	8.0493	839.119	604.215	583.323	656.6	589.3	2910.17	1992.97	.7558	40.449	2.230	46.58	.0634	0.000
19	8.1933	852.053	671.245	537.526	660.1	593.9	2906.72	2007.28	.7470	41.135	1.546	55.21	.0634	0.000
20	8.3442	843.096	635.435	552.726	664.0	599.0	2902.65	2023.75	.7368	42.124	.811	89.23	.0634	0.000
21	8.5003	873.122	635.757	598.430	666.1	604.7	2897.64	2043.14	.7246	43.258	0.000	0.00	.0634	0.000

STATION 19
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GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	4.9731	1085.726	905.337	594.340	640.6	542.5	3089.20	1725.98	.9513	33.354	26.589	-7.89	.0597	0.000
2	5.0355	1079.570	903.323	590.269	640.4	543.4	3087.21	1736.92	.9451	33.145	25.639	-8.31	.0599	0.000
3	5.2044	1060.552	892.719	572.523	639.9	546.3	3075.91	1769.50	.9260	32.673	23.186	-10.17	.0608	0.000
4	5.3213	1047.351	884.073	561.524	639.5	548.2	3072.14	1791.29	.9129	32.427	21.657	-12.11	.0613	0.000
5	5.4559	1033.535	875.055	549.319	639.2	550.3	3065.64	1814.60	.8991	32.147	20.029	-15.48	.0618	0.000
6	5.6035	1019.234	865.277	537.331	638.9	552.5	3059.11	1838.57	.8849	31.796	18.360	-21.85	.0624	0.000
7	5.7873	1004.943	857.354	523.207	638.7	554.7	3051.06	1861.52	.8708	31.379	16.599	-34.97	.0629	0.000
8	5.9415	991.053	850.239	509.255	638.6	556.6	3041.23	1882.40	.8571	30.920	15.069	-63.83	.0634	0.000
9	6.1251	977.547	842.470	495.737	638.5	559.0	3024.74	1900.99	.8440	30.462	13.476	-120.67	.0638	0.000
10	6.3173	965.150	835.377	483.404	638.8	561.3	3016.92	1917.74	.8314	30.057	11.931	-174.11	.0641	0.000
11	6.5194	952.716	827.365	472.342	639.3	563.6	3002.95	1933.38	.8188	29.722	10.440	-140.65	.0643	0.000
12	6.7213	940.026	819.435	462.345	640.2	566.7	2987.82	1946.85	.8059	29.466	9.020	-92.60	.0645	0.000
13	6.9435	926.612	809.155	453.317	641.5	570.0	2971.31	1964.85	.7920	29.289	7.680	-65.22	.0646	0.000
14	7.1787	912.118	795.243	444.915	643.1	573.9	2953.31	1981.87	.7770	29.195	6.424	-51.79	.0648	0.000
15	7.4153	898.570	782.503	437.729	645.5	578.5	2935.03	2000.26	.7609	29.213	5.235	-45.74	.0648	0.000
16	7.6641	884.230	771.387	432.601	646.6	584.1	2919.31	2020.76	.7441	29.338	4.087	-44.67	.0649	0.000
17	7.9321	866.735	752.240	430.561	653.5	591.0	2904.94	2042.60	.7276	29.791	2.964	-47.54	.0648	0.000
18	8.0635	860.445	744.577	431.243	656.6	595.0	2893.83	2053.58	.7199	30.079	2.277	-53.76	.0647	0.000
19	8.2054	853.936	733.157	432.750	660.1	599.4	2889.21	2065.41	.7118	30.450	1.602	-70.41	.0646	0.000
20	8.3521	846.548	725.373	434.371	664.0	604.3	2883.04	2078.37	.7028	30.914	.853	-124.32	.0645	0.000
21	8.5000	836.145	714.345	437.397	666.1	609.6	2883.54	2092.35	.6928	31.471	0.000	0.00	.0644	0.000

STATION 19 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	INLET	OUTLET	RELATIVE VELOCITIES INLET	OUTLET	RELATIVE MACH NO.S INLET	OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	OUTLET	STREAM -LINE
1		51.871	33.354	1149.596	1085.726	1.0184	.9513	.0489	.944	0.0000	.0589	0.0	0.0	1
2		50.134	33.145	1140.941	1079.578	1.0094	.9451	.0470	.946	0.0000	.0573	0.0	0.0	2
3		47.803	32.573	1121.422	1060.532	.9892	.9260	.0418	.946	0.0300	.0614	0.0	0.0	3
4		46.494	32.427	1103.957	1047.381	.9764	.9129	.0381	.944	0.0000	.0656	0.0	0.0	4
5		45.258	32.147	1094.821	1033.505	.9619	.8991	.0335	.944	0.0000	.0693	0.0	0.0	5
6		44.038	31.796	1079.583	1019.234	.9464	.8849	.0279	.944	0.0000	.0727	0.0	0.0	6
7		43.821	31.379	1063.459	1004.343	.9300	.8708	.0223	.945	0.0000	.0751	0.0	0.0	7
8		42.834	30.920	1046.845	991.083	.9131	.8571	.0172	.947	0.0000	.0758	0.0	0.0	8
9		41.143	30.462	1030.238	977.847	.8963	.8440	.0129	.949	0.0000	.0750	0.0	0.0	9
10		40.366	30.057	1013.982	965.160	.8798	.8314	.0097	.952	0.0000	.0730	0.0	0.0	10
11		39.718	29.722	998.115	952.718	.8635	.8188	.0078	.955	0.0000	.0703	0.0	0.0	11
12		39.213	29.466	982.478	940.026	.8473	.8059	.0069	.957	0.0000	.0675	0.0	0.0	12
13		38.864	29.239	966.775	926.612	.8310	.7920	.0067	.958	0.0000	.0652	0.0	0.0	13
14		38.692	29.195	950.767	912.118	.8142	.7770	.0068	.959	0.0000	.0640	0.0	0.0	14
15		38.746	29.213	934.861	896.870	.7972	.7609	.0072	.959	0.0000	.0641	0.0	0.0	15
16		39.099	29.398	919.715	881.290	.7804	.7441	.0081	.958	0.0000	.0657	0.0	0.0	16
17		39.664	29.791	905.736	866.795	.7640	.7276	.0099	.957	0.0000	.0668	0.0	0.0	17
18		40.449	30.079	839.119	860.445	.7558	.7199	.0112	.957	0.0000	.0661	0.0	0.0	18
19		41.195	30.450	892.053	853.936	.7470	.7118	.0128	.957	0.0000	.0646	0.0	0.0	19
20		42.124	30.914	883.696	846.648	.7368	.7028	.0146	.958	0.0000	.0621	0.0	0.0	20
21		43.268	31.471	873.102	838.195	.7246	.6928	.0165	.960	0.0000	.0576	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	.9764	0.0000	0.0000	2.0310	.2351	.9541
2	.9776	0.0000	0.0000	2.0297	.2347	.9546
3	.9806	0.0000	0.0000	2.0243	.2336	.9549
4	.9826	0.0000	0.0000	2.0198	.2330	.9544
5	.9850	0.0000	0.0000	2.0155	.2324	.9536
6	.9878	0.0000	0.0000	2.0113	.2318	.9525
7	.9905	0.0000	0.0000	2.0060	.2314	.9504
8	.9928	0.0000	0.0000	1.9995	.2311	.9468
9	.9948	0.0000	0.0000	1.9919	.2311	.9411
10	.9961	0.0000	0.0000	1.9835	.2315	.9329
11	.9970	0.0000	0.0000	1.9743	.2326	.9218
12	.9974	0.0000	0.0000	1.9644	.2343	.9076
13	.9976	0.0000	0.0000	1.9535	.2367	.8903
14	.9976	0.0000	0.0000	1.9417	.2399	.8696
15	.9975	0.0000	0.0000	1.9297	.2444	.8448
16	.9973	0.0000	0.0000	1.9187	.2508	.8154
17	.9968	0.0000	0.0000	1.9099	.2600	.7806
18	.9965	0.0000	0.0000	1.9066	.2659	.7610
19	.9960	0.0000	0.0000	1.9035	.2726	.7401
20	.9956	0.0000	0.0000	1.9001	.2801	.7183
21	.9951	0.0000	0.0000	1.8958	.2881	.6957

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	.9944	1.9548
DELTA T ON T	-.0000	.2449
ISEN. EFFICY.	*******	.8614

STATION 20
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.1888	1038.295	955.450	404.030	640.6	550.9	3014.79	1777.37	.9027	22.901	22.491	-7.92	.0605	0.000
2	5.2378	1033.201	952.403	400.549	640.4	551.6	3016.87	1788.24	.8978	22.810	21.864	-8.26	.0608	0.000
3	5.3604	1017.749	939.670	390.939	639.9	553.7	3019.52	1819.12	.8827	22.589	20.217	-9.24	.0616	0.000
4	5.4615	1007.242	930.873	384.708	639.5	555.1	3020.04	1839.35	.8724	22.454	19.154	-9.95	.0621	0.000
5	5.5996	995.950	921.547	377.794	639.2	556.7	3020.58	1861.11	.8615	22.292	17.990	-10.84	.0627	0.000
6	5.7326	983.758	911.537	370.054	638.9	558.4	3020.02	1883.99	.8496	22.036	16.755	-11.91	.0633	0.000
7	5.8794	971.191	901.335	361.674	638.7	560.2	3018.44	1906.96	.8374	21.864	15.464	-13.15	.0638	0.000
8	6.0383	958.546	891.164	353.039	638.6	562.1	3015.81	1929.40	.8251	21.611	14.124	-14.70	.0644	0.000
9	6.2085	945.532	880.803	344.651	638.5	564.1	3011.32	1950.82	.8127	21.370	12.744	-16.87	.0649	0.000
10	6.3893	933.100	870.113	337.023	638.8	566.3	3004.07	1970.61	.8002	21.173	11.341	-19.91	.0653	0.000
11	6.5804	920.450	859.144	330.303	639.3	568.8	2993.54	1988.23	.7876	21.030	9.337	-24.20	.0656	0.000
12	6.7815	907.933	847.971	324.482	640.2	571.6	2980.08	2003.76	.7750	20.940	8.562	-30.08	.0557	0.000
13	6.9932	895.488	835.559	319.480	641.5	574.7	2964.10	2017.52	.7623	20.902	7.238	-37.57	.0658	0.000
14	7.2155	883.030	824.856	315.206	643.1	578.2	2946.18	2030.03	.7494	20.914	5.980	-45.75	.0658	0.000
15	7.4468	870.758	813.033	311.764	645.5	582.4	2927.72	2042.08	.7363	20.980	4.784	-52.64	.0658	0.000
16	7.6937	858.905	801.267	309.336	648.8	587.4	2910.34	2054.71	.7232	21.110	3.629	-57.76	.0656	0.000
17	7.9503	848.546	790.625	308.128	653.5	593.6	2895.58	2067.64	.7107	21.292	2.470	-67.16	.0653	0.000
18	8.0832	844.309	785.110	306.038	656.6	597.3	2883.49	2073.95	.7050	21.338	1.884	-75.91	.0651	0.000
19	8.2130	840.152	781.564	308.241	660.1	601.4	2883.62	2080.60	.6991	21.524	1.288	-97.80	.0649	0.000
20	8.3579	835.645	775.552	308.658	664.0	605.9	2877.17	2087.66	.6928	21.677	.666	-165.65	.0646	0.000
21	8.5000	830.607	770.914	309.194	668.1	610.7	2869.44	2094.76	.6859	21.855	0.000	0.00	.0643	0.000

STATION 20 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	RELATIVE GAS ANGLES INLET	RELATIVE GAS ANGLES OUTLET	RELATIVE VELOCITIES INLET	RELATIVE VELOCITIES OUTLET	RELATIVE MACH NO.S INLET	RELATIVE MACH NO.S OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	BLADE SPEEDS OUTLET	STREAM -LINE
1		33.354	22.901	1085.726	1038.295	.9513	.9027	.0975	.956	0.0000	.0377	0.0	0.0	1
2		33.145	22.810	1079.578	1033.201	.9451	.8978	.0936	.957	0.0000	.0380	0.0	0.0	2
3		32.673	22.589	1060.532	1017.749	.9260	.8827	.0825	.960	0.0000	.0379	0.0	0.0	3
4		32.427	22.454	1047.381	1007.242	.9129	.8724	.0746	.962	0.0000	.0375	0.0	0.0	4
5		32.147	22.292	1033.565	995.950	.8991	.8615	.0658	.964	0.0000	.0372	0.0	0.0	5
6		31.736	22.036	1019.234	983.758	.8849	.8496	.0567	.965	0.0000	.0372	0.0	0.0	6
7		31.379	21.864	1004.943	971.191	.8708	.8374	.0471	.966	0.0000	.0382	0.0	0.0	7
8		30.920	21.611	991.083	958.546	.8571	.8251	.0371	.967	0.0000	.0406	0.0	0.0	8
9		30.462	21.370	977.347	945.532	.8440	.8127	.0278	.967	0.0000	.0441	0.0	0.0	9
10		30.056	21.173	965.160	933.100	.8314	.8002	.0205	.967	0.0000	.0481	0.0	0.0	10
11		29.721	21.030	952.718	920.450	.8188	.7876	.0159	.966	0.0000	.0513	0.0	0.0	11
12		29.466	20.940	940.026	907.933	.8059	.7750	.0138	.966	0.0000	.0528	0.0	0.0	12
13		29.289	20.902	926.612	895.458	.7920	.7623	.0134	.966	0.0000	.0523	0.0	0.0	13
14		29.195	20.914	912.118	883.030	.7770	.7494	.0136	.968	0.0000	.0496	0.0	0.0	14
15		29.213	20.980	896.870	870.756	.7609	.7363	.0145	.971	0.0000	.0447	0.0	0.0	15
16		29.398	21.110	881.290	858.905	.7441	.7232	.0164	.975	0.0000	.0378	0.0	0.0	16
17		29.791	21.292	866.795	848.546	.7276	.7107	.0199	.979	0.0000	.0290	0.0	0.0	17
18		30.079	21.396	860.445	844.309	.7199	.7050	.0225	.981	0.0000	.0241	0.0	0.0	18
19		30.450	21.524	853.936	840.152	.7118	.6991	.0257	.984	0.0000	.0183	0.0	0.0	19
20		30.914	21.677	846.645	835.645	.7026	.6928	.0292	.987	0.0000	.0114	0.0	0.0	20
21		31.471	21.855	835.195	830.607	.6928	.6859	.0330	.991	0.0000	.0031	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	.9753	0.0000	0.0000	1.9821	.2351	.9179
2	.9772	0.0000	0.0000	1.9835	.2347	.9203
3	.9807	0.0000	0.0000	1.9852	.2336	.9258
4	.9833	0.0000	0.0000	1.9856	.2330	.9288
5	.9851	0.0000	0.0000	1.9859	.2324	.9314
6	.9872	0.0000	0.0000	1.9855	.2318	.9332
7	.9893	0.0000	0.0000	1.9845	.2314	.9343
8	.9914	0.0000	0.0000	1.9829	.2311	.9342
9	.9939	0.0000	0.0000	1.9796	.2311	.9320
10	.9957	0.0000	0.0000	1.9751	.2315	.9265
11	.9969	0.0000	0.0000	1.9681	.2326	.9171
12	.9974	0.0000	0.0000	1.9593	.2343	.9038
13	.9976	0.0000	0.0000	1.9439	.2367	.8868
14	.9976	0.0000	0.0000	1.9370	.2399	.8661
15	.9975	0.0000	0.0000	1.9249	.2444	.8413
16	.9973	0.0000	0.0000	1.9134	.2508	.8117
17	.9959	0.0000	0.0000	1.9037	.2600	.7764
18	.9964	0.0000	0.0000	1.8997	.2659	.7564
19	.9960	0.0000	0.0000	1.8953	.2726	.7351
20	.9955	0.0000	0.0000	1.8916	.2801	.7128
21	.9951	0.0000	0.0000	1.8865	.2881	.6899

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	.9942	1.9434
DELTA T ON T	-.0000	.2449
ISEN. EFFICY.	*******	.8531

STATION 21
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	MERIDNL.	TANGENTL.	TEMPERATURES TOTAL	STATIC	PRESSURES TOTAL	STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD. OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.3756	1000.319	970.625	241.304	640.6	557.3	2946.68	1809.42	.8647	13.934	18.771	-7.92	.0609	0.000
2	5.4170	996.870	967.351	240.791	640.4	557.7	2951.00	1818.33	.8614	13.978	18.348	-8.21	.0611	0.000
3	5.5383	985.971	955.921	237.573	639.9	559.0	2959.69	1843.69	.8510	13.943	17.183	-9.04	.0619	0.000
4	5.6254	978.320	949.605	235.287	639.5	559.9	2964.95	1860.84	.8438	13.916	16.394	-9.60	.0623	0.000
5	5.7312	970.221	941.964	232.449	639.2	560.9	2971.58	1879.93	.8350	13.862	15.501	-10.22	.0629	0.000
6	5.8514	961.782	934.084	228.319	638.9	562.0	2979.13	1900.50	.8279	13.765	14.521	-10.93	.0634	0.000
7	5.9856	952.656	925.639	224.459	638.7	563.2	2986.09	1921.76	.8192	13.628	13.470	-11.80	.0640	0.000
8	6.1327	943.055	917.124	219.671	638.6	564.5	2991.25	1943.05	.8100	13.470	12.358	-12.88	.0646	0.000
9	6.2917	932.921	907.717	214.352	638.5	566.1	2993.41	1963.60	.8001	13.323	11.201	-14.23	.0651	0.000
10	6.4620	921.762	897.320	210.060	638.8	568.1	2991.25	1983.52	.7892	13.224	10.012	-15.98	.0655	0.000
11	6.6434	909.736	885.813	207.490	639.3	570.4	2984.06	2001.80	.7773	13.183	8.812	-18.31	.0658	0.000
12	6.8357	897.147	873.475	204.727	640.2	573.2	2972.29	2018.41	.7647	13.131	7.622	-21.45	.0660	0.000
13	7.0392	884.139	860.675	202.357	641.5	576.4	2956.88	2033.27	.7515	13.231	6.459	-25.66	.0662	0.000
14	7.2540	871.149	847.840	200.169	643.1	580.0	2939.03	2046.43	.7382	13.284	5.329	-31.24	.0662	0.000
15	7.4883	858.835	835.603	194.364	645.5	584.1	2920.37	2058.03	.7252	13.356	4.233	-38.87	.0661	0.000
16	7.7183	847.639	824.533	197.423	648.6	589.0	2902.34	2068.32	.7129	13.465	3.159	-50.49	.0659	0.000
17	7.9677	839.242	815.940	197.818	653.5	594.9	2886.28	2075.92	.7022	13.634	2.097	-73.69	.0655	0.000
18	8.0955	836.157	812.207	195.691	656.6	598.4	2879.24	2080.42	.6975	13.746	1.571	-96.30	.0652	0.000
19	8.2284	833.473	803.129	199.971	660.1	602.3	2872.25	2083.64	.6931	13.882	1.050	-139.21	.0649	0.000
20	8.3628	830.734	805.975	201.549	664.0	606.5	2864.62	2086.64	.6894	14.040	.528	-265.49	.0645	0.000
21	8.5009	827.853	802.582	203.301	668.1	611.1	2855.77	2089.32	.6834	14.216	0.009	0.00	.0641	0.000

STATION 21 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	INLET	OUTLET	RELATIVE VELOCITIES INLET	OUTLET	RELATIVE MACH NO.S INLET	OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	OUTLET	STREAM -LINE
1		22.980	13.994	1036.285	1000.319	.9027	.8647	.1421	.963	0.0000	.0259	0.0	0.0	1
2		22.810	13.973	1033.201	996.870	.8978	.8614	.1373	.965	0.0000	.0245	0.0	0.0	2
3		22.569	13.943	1017.743	985.971	.8827	.8510	.1233	.969	0.0000	.0205	0.0	0.0	3
4		22.454	13.916	1007.242	978.320	.8724	.8438	.1131	.971	0.0000	.0182	0.0	0.0	4
5		22.291	13.862	995.980	970.221	.8615	.8360	.1009	.974	0.0000	.0162	0.0	0.0	5
6		22.046	13.765	983.750	961.712	.8496	.8279	.0868	.978	0.0000	.0145	0.0	0.0	6
7		21.864	13.628	971.191	952.550	.8374	.8192	.0716	.981	0.0000	.0133	0.0	0.0	7
8		21.611	13.470	958.546	943.065	.8251	.8100	.0563	.984	0.0000	.0126	0.0	0.0	8
9		21.378	13.323	945.832	932.821	.8127	.8001	.0423	.986	0.0000	.0122	0.0	0.0	9
10		21.173	13.224	933.100	921.762	.8002	.7892	.0311	.988	0.0000	.0125	0.0	0.0	10
11		21.030	13.163	920.450	909.786	.7876	.7773	.0241	.988	0.0000	.0135	0.0	0.0	11
12		20.940	13.191	907.933	897.147	.7750	.7647	.0208	.988	0.0000	.0150	0.0	0.0	12
13		20.902	13.231	895.486	884.139	.7623	.7515	.0200	.987	0.0000	.0166	0.0	0.0	13
14		20.914	13.284	883.030	871.149	.7494	.7382	.0205	.987	0.0000	.0179	0.0	0.0	14
15		20.980	13.356	870.758	859.325	.7363	.7252	.0218	.986	0.0000	.0160	0.0	0.0	15
16		21.109	13.465	858.905	847.339	.7232	.7129	.0246	.987	0.0000	.0159	0.0	0.0	16
17		21.292	13.634	848.546	839.242	.7107	.7022	.0299	.989	0.0000	.0112	0.0	0.0	17
18		21.338	13.746	844.303	836.157	.7050	.6975	.0337	.990	0.0000	.0079	0.0	0.0	18
19		21.524	13.882	840.152	833.473	.6991	.6931	.0383	.992	0.0000	.0038	0.0	0.0	19
20		21.676	14.043	835.645	830.794	.6928	.6884	.0435	.994	0.0000	-.0013	0.0	0.0	20
21		21.854	14.215	830.607	827.853	.6859	.6834	.0490	.997	0.0000	-.0070	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	.9774	0.0000	0.0000	1.9373	.2351	.8843
2	.9782	0.0000	0.0000	1.9402	.2347	.8878
3	.9802	0.0000	0.0000	1.9460	.2336	.8963
4	.9813	0.0000	0.0000	1.9493	.2330	.9014
5	.9835	0.0000	0.0000	1.9537	.2324	.9070
6	.9865	0.0000	0.0000	1.9587	.2318	.9128
7	.9893	0.0000	0.0000	1.9632	.2314	.9161
8	.9919	0.0000	0.0000	1.9666	.2311	.9219
9	.9941	0.0000	0.0000	1.9681	.2311	.9230
10	.9957	0.0000	0.0000	1.9667	.2315	.9201
11	.9965	0.0000	0.0000	1.9619	.2326	.9124
12	.9974	0.0000	0.0000	1.9542	.2343	.9000
13	.9976	0.0000	0.0000	1.9440	.2367	.8832
14	.9975	0.0000	0.0000	1.9323	.2393	.8626
15	.9974	0.0000	0.0000	1.9200	.2444	.8378
16	.9973	0.0000	0.0000	1.9082	.2508	.8079
17	.9958	0.0000	0.0000	1.8976	.2600	.7721
18	.9965	0.0000	0.0000	1.8930	.2659	.7518
19	.9961	0.0000	0.0000	1.8884	.2726	.7301
20	.9956	0.0000	0.0000	1.8834	.2801	.7075
21	.9932	0.0000	0.0000	1.8776	.2881	.6842

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	.9341	1.9320
DELTA T ON T	-.0000	.2449
ISEN. EFFICY.	*******	.8448

STATION 22
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.5125	963.139	956.393	113.794	640.6	563.4	2870.60	1833.91	.8281	6.785	15.166	-7.89	.0609	0.000
2	5.5517	960.531	953.683	113.326	640.4	563.6	2873.68	1840.47	.8257	6.775	14.883	-8.16	.0612	0.000
3	5.6663	952.423	945.822	111.939	639.9	564.4	2897.69	1866.88	.8181	6.750	14.058	-8.94	.0620	0.000
4	5.7497	946.785	940.267	110.904	639.5	564.9	2909.67	1884.51	.8129	6.727	13.467	-9.50	.0626	0.000
5	5.8498	940.963	934.555	109.530	639.2	565.5	2923.82	1904.02	.8075	6.691	12.767	-10.13	.0631	0.000
6	5.9530	934.663	928.406	108.113	638.9	566.2	2939.65	1924.96	.8016	6.642	11.972	-10.83	.0638	0.000
7	6.0903	927.932	921.812	106.397	634.7	567.0	2953.18	1946.70	.7952	6.584	11.099	-11.58	.0644	0.000
8	6.2388	920.632	914.674	104.575	638.6	568.0	2966.22	1968.68	.7883	6.522	10.165	-12.44	.0650	0.000
9	6.3811	912.239	906.400	102.782	638.5	569.3	2975.65	1990.62	.7802	6.469	9.193	-13.53	.0656	0.000
10	6.5451	902.115	895.425	101.167	638.8	571.1	2979.07	2011.97	.7704	6.439	8.204	-15.03	.0661	0.000
11	6.7159	890.199	884.590	99.778	639.3	573.4	2975.10	2031.97	.7587	6.435	7.218	-17.16	.0665	0.000
12	6.8993	876.940	871.361	98.584	640.2	576.2	2964.77	2050.22	.7455	6.455	6.247	-20.10	.0667	0.000
13	7.0941	862.939	857.405	97.574	641.5	579.5	2949.67	2066.54	.7315	6.492	5.292	-23.97	.0669	0.000
14	7.3001	848.957	843.429	96.720	643.1	583.2	2931.86	2080.86	.7174	6.542	4.347	-28.76	.0669	0.000
15	7.5175	835.684	830.135	96.140	645.5	587.3	2913.12	2093.38	.7037	6.606	3.416	-34.91	.0668	0.000
16	7.7464	823.760	818.1[illegible]	96.029	649.8	592.3	2894.57	2104.15	.6907	6.694	2.508	-44.29	.0666	0.000
17	7.9866	814.834	808.270	96.629	653.5	598.4	2877.21	2112.96	.6791	6.817	1.639	-64.55	.0662	0.000
18	8.1109	810.201	804.341	97.270	656.6	602.0	2869.11	2116.56	.6739	6.895	1.217	-85.10	.0659	0.000
19	8.2380	806.802	800.811	98.117	660.1	605.9	2860.86	2119.63	.6689	6.985	.803	-124.28	.0656	0.000
20	8.3677	803.527	797.390	99.114	664.0	610.2	2851.86	2122.16	.6638	7.085	.397	-239.55	.0652	0.000
21	8.5098	800.124	793.625	100.201	666.5	614.8	2841.67	2124.11	.6585	7.194	0.000	0.00	.0648	0.000

STATION 22 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	RELATIVE GAS ANGLES INLET	RELATIVE GAS ANGLES OUTLET	RELATIVE VELOCITIES INLET	RELATIVE VELOCITIES OUTLET	RELATIVE MACH NO.S INLET	RELATIVE MACH NO.S OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	BLADE SPEEDS OUTLET	STREAM -LINE
1		13.994	6.785	1000.319	963.139	.8647	.8281	.1919	.963	0.0000	.0189	0.0	0.0	1
2		13.978	6.775	996.870	960.531	.8614	.8257	.1853	.964	0.0000	.0195	0.0	0.0	2
3		13.943	6.750	985.971	952.423	.8510	.8181	.1653	.966	0.0000	.0208	0.0	0.0	3
4		13.916	6.727	978.320	946.785	.8438	.8129	.1518	.968	0.0000	.0214	0.0	0.0	4
5		13.862	6.691	970.221	940.963	.8360	.8075	.1352	.970	0.0000	.0221	0.0	0.0	5
6		13.764	6.642	961.782	934.663	.8279	.8016	.1167	.972	0.0000	.0227	0.0	0.0	6
7		13.628	6.584	952.660	927.932	.8192	.7952	.0966	.974	0.0000	.0234	0.0	0.0	7
8		13.478	6.522	943.065	920.632	.8100	.7883	.0759	.976	0.0000	.0245	0.0	0.0	8
9		13.323	6.469	932.821	912.239	.8001	.7802	.0566	.978	0.0000	.0261	0.0	0.0	9
10		13.224	6.439	921.762	902.116	.7892	.7704	.0413	.979	0.0000	.0282	0.0	0.0	10
11		13.183	6.435	909.746	890.199	.7773	.7587	.0318	.978	0.0000	.0307	0.0	0.0	11
12		13.191	6.455	897.147	876.940	.7647	.7455	.0275	.977	0.0000	.0333	0.0	0.0	12
13		13.231	6.492	884.139	862.939	.7515	.7315	.0267	.976	0.0000	.0360	0.0	0.0	13
14		13.284	6.542	871.149	848.957	.7382	.7174	.0273	.975	0.0000	.0386	0.0	0.0	14
15		13.355	6.606	858.835	835.684	.7252	.7037	.0290	.973	0.0000	.0410	0.0	0.0	15
16		13.465	6.694	847.839	823.750	.7129	.6907	.0326	.972	0.0000	.0430	0.0	0.0	16
17		13.633	6.817	839.242	814.834	.7022	.6791	.0396	.970	0.0000	.0445	0.0	0.0	17
18		13.746	6.895	836.157	810.201	.6975	.6739	.0448	.969	0.0000	.0452	0.0	0.0	18
19		14.882	6.985	833.473	806.802	.6931	.6689	.0510	.968	0.0000	.0456	0.0	0.0	19
20		14.040	7.085	830.794	803.527	.6884	.6638	.0580	.967	0.0000	.0457	0.0	0.0	20
21		14.216	7.194	827.853	800.124	.6834	.6585	.0655	.967	0.0000	.0454	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	.9742	0.0000	0.0000	1.8873	.2351	.8460
2	.9755	0.0000	0.0000	1.8926	.2347	.8514
3	.9793	0.0000	0.0000	1.9051	.2335	.8650
4	.9814	0.0000	0.0000	1.9133	.2330	.8736
5	.9833	0.0000	0.0000	1.9223	.2324	.8830
6	.9864	0.0000	0.0000	1.9321	.2318	.8925
7	.9930	0.0000	0.0000	1.9415	.2314	.9016
8	.9916	0.0000	0.0000	1.9502	.2311	.9093
9	.9941	0.0000	0.0000	1.9564	.2311	.9141
10	.9959	0.0000	0.0000	1.9586	.2315	.9140
11	.9970	0.0000	0.0000	1.9563	.2326	.9079
12	.9975	0.0000	0.0000	1.9492	.2343	.8962
13	.9975	0.0000	0.0000	1.9393	.2367	.8796
14	.9376	0.0000	0.0000	1.9276	.2399	.8591
15	.9375	0.0000	0.0000	1.9153	.2444	.8343
16	.9973	0.0000	0.0000	1.9031	.2503	.8043
17	.9959	0.0000	0.0000	1.8917	.2600	.7683
18	.9965	0.0000	0.0000	1.8863	.2659	.7473
19	.9950	0.0000	0.0000	1.8809	.2726	.7252
20	.9955	0.0000	0.0000	1.8759	.2801	.7020
21	.9951	0.0000	0.0000	1.8683	.2881	.6783

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	.9940	1.9204
DELTA T ON T	-.0000	.2449
ISEN. EFFICY.	*******	.8364

STATION 23
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GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	MERIDNL.	TANGENTL.	TEMPERATURES TOTAL	STATIC	PRESSURES TOTAL	STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.6314	835.851	895.051	0.000	640.6	573.9	2806.88	1910.20	.7624	0.000	10.903	-7.93	.0624	0.000
2	5.6663	834.678	894.673	0.000	640.4	573.8	2813.49	1919.20	.7622	0.000	10.716	-8.05	.0627	0.000
3	5.7787	891.916	891.915	0.000	639.9	573.7	2853.71	1944.65	.7599	0.000	10.159	-8.45	.0636	0.000
4	5.8575	889.498	889.498	0.000	639.5	573.7	2870.91	1962.28	.7579	0.000	9.752	-8.79	.0642	0.000
5	5.9524	886.939	885.939	0.000	639.2	573.7	2893.98	1982.25	.7556	0.000	9.262	-9.27	.0648	0.000
6	6.0606	883.363	883.663	0.000	638.9	573.9	2917.76	2003.74	.7529	0.000	8.708	-9.94	.0655	0.000
7	6.1815	879.756	879.756	0.000	638.7	574.3	2939.68	2025.93	.7492	0.000	8.075	-10.85	.0662	0.000
8	6.3140	874.222	874.222	0.000	638.6	574.9	2957.44	2048.04	.7440	0.000	7.403	-12.07	.0668	0.000
9	6.4577	866.715	866.715	0.000	638.5	576.0	2968.62	2069.42	.7369	0.000	6.704	-13.63	.0674	0.000
10	6.6121	856.791	855.791	0.000	638.8	577.7	2971.39	2089.62	.7275	0.000	5.995	-15.58	.0678	0.000
11	6.7773	844.837	844.637	0.000	639.3	579.9	2966.68	2108.33	.7160	0.000	5.291	-17.97	.0682	0.000
12	6.9534	831.738	831.733	0.000	640.2	582.6	2956.49	2125.38	.7032	0.000	4.593	-20.95	.0684	0.000
13	7.1404	818.468	818.498	0.000	641.5	585.7	2943.24	2140.60	.6902	0.000	3.899	-24.93	.0685	0.000
14	7.3386	805.206	805.266	0.000	643.1	589.2	2927.51	2153.79	.6770	0.000	3.203	-30.92	.0686	0.000
15	7.5460	792.237	792.237	0.000	645.5	593.2	2909.09	2164.77	.6638	0.000	2.509	-40.87	.0684	0.000
16	7.7689	779.678	773.878	0.000	648.8	598.2	2888.68	2173.48	.6507	0.000	1.830	-58.94	.0681	0.000
17	8.0013	769.239	769.239	0.000	653.5	604.3	2868.30	2180.06	.6386	0.000	1.188	-93.53	.0677	0.000
18	8.1219	764.903	764.903	0.000	656.6	607.9	2858.74	2182.66	.6331	0.000	.878	-127.20	.0673	0.000
19	8.2452	760.998	760.994	0.000	660.1	611.9	2849.16	2184.79	.6278	0.000	.575	-197.06	.0670	0.000
20	8.3712	757.189	757.159	0.000	664.0	616.2	2839.00	2186.47	.6224	0.000	.282	-408.75	.0665	0.000
21	8.5000	753.173	753.173	0.000	668.1	620.9	2827.81	2187.73	.6168	0.000	0.000	0.00	.0661	0.000

STATION 23 IS AT THE EXIT OF A BLADE ROW ROTATING AT 0.0 RPM.

STREAM -LINE	RELATIVE GAS ANGLES OPT.IN.	INLET	OUTLET	RELATIVE VELOCITIES INLET	OUTLET	RELATIVE MACH NO.S INLET	OUTLET	LOSS COEFF	DE HALL NUMBER	DIFFUS FACTOR	DELTA P UPON Q	BLADE SPEEDS INLET	OUTLET	STREAM -LINE
1		6.765	0.000	965.139	895.051	.8281	.7624	.2336	.929	0.0000	.0763	0.0	0.0	1
2		6.775	0.000	960.591	894.074	.8257	.7622	.2246	.931	0.0000	.0758	0.0	0.0	2
3		6.750	0.000	952.423	891.315	.8181	.7599	.1981	.936	0.0000	.0754	0.0	0.0	3
4		6.727	0.000	946.705	889.496	.8129	.7579	.1789	.939	0.0000	.0759	0.0	0.0	4
5		6.691	0.000	940.963	886.939	.8075	.7556	.1566	.943	0.0000	.0767	0.0	0.0	5
6		6.647	0.000	934.580	883.853	.8016	.7529	.1321	.946	0.0000	.0777	0.0	0.0	6
7		6.534	0.000	927.932	879.756	.7952	.7492	.1068	.948	0.0000	.0787	0.0	0.0	7
8		6.522	0.000	923.652	874.222	.7883	.7440	.0828	.950	0.0000	.0795	0.0	0.0	8
9		6.459	0.000	912.269	866.715	.7802	.7369	.0623	.950	0.0000	.0800	0.0	0.0	9
10		6.439	0.000	902.116	856.741	.7704	.7275	.0477	.950	0.0000	.0803	0.0	0.0	10
11		6.435	0.000	890.199	844.337	.7587	.7160	.0391	.949	0.0000	.0810	0.0	0.0	11
12		6.455	0.000	875.940	831.798	.7455	.7032	.0348	.949	0.0000	.0822	0.0	0.0	12
13		6.432	0.000	862.339	815.438	.7315	.6902	.0326	.948	0.0000	.0839	0.0	0.0	13
14		6.542	0.000	846.497	805.255	.7174	.6770	.0315	.949	0.0000	.0857	0.0	0.0	14
15		6.606	0.000	835.504	792.237	.7037	.6638	.0330	.948	0.0000	.0871	0.0	0.0	15
16		6.694	0.000	823.763	779.375	.6907	.6537	.0387	.947	0.0000	.0877	0.0	0.0	16
17		6.817	0.000	814.834	769.239	.6791	.6356	.0491	.945	0.0000	.0878	0.0	0.0	17
18		6.835	0.000	810.202	764.333	.6739	.6331	.0561	.944	0.0000	.0878	0.0	0.0	18
19		6.935	0.000	806.502	760.335	.6689	.6278	.0640	.943	0.0000	.0879	0.0	0.0	19
20		7.065	0.000	803.527	757.139	.6638	.6224	.0726	.942	0.0000	.0881	0.0	0.0	20
21		7.134	0.000	800.124	753.173	.6585	.6158	.0817	.941	0.0000	.0887	0.0	0.0	21

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	DELTA T ON T	ISENTROPIC EFFICIENCY
1	.9775	0.0000	0.0000	1.8454	.2351	.8135
2	.9774	0.0000	0.0000	1.8537	.2347	.8212
3	.9858	0.0000	0.0000	1.8742	.2336	.8410
4	.9957	0.0000	0.0000	1.8875	.2330	.8536
5	.9933	0.0000	0.0000	1.9027	.2324	.8678
6	.9923	0.0000	0.0000	1.9133	.2313	.8819
7	.9954	0.0000	0.0000	1.9327	.2314	.8947
8	.9973	0.0000	0.0000	1.9444	.2311	.9049
9	.9973	0.0000	0.0000	1.9518	.2311	.9105
10	.9974	0.0000	0.0000	1.9536	.2319	.9101
11	.9972	0.0000	0.0000	1.9505	.2326	.9037
12	.9972	0.0000	0.0000	1.9433	.2343	.8921
13	.9976	0.0000	0.0000	1.9351	.2367	.8765
14	.9965	0.0000	0.0000	1.9247	.2399	.8569
15	.9955	0.0000	0.0000	1.9126	.2444	.8323
16	.9960	0.0000	0.0000	1.8992	.2509	.8015
17	.9959	0.0000	0.0000	1.8856	.2580	.7639
18	.9954	0.0000	0.0000	1.8735	.2659	.7426
19	.9959	0.0000	0.0000	1.8732	.2726	.7200
20	.9955	0.0000	0.0000	1.8605	.2801	.6965
21	.9951	0.0000	0.0000	1.8592	.2881	.6726

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	.9958	1.9123
DELTA T ON T	-.0000	.2449
ISEN. EFFICY.	*******	.8304

STATION 24

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.7569	612.720	612.720	0.000	640.6	565.6	2805.65	2050.10	.6853	0.000	5.537	-7.39	.0657	0.000
2	5.7915	614.420	614.433	0.000	640.4	585.2	2613.49	2056.31	.6870	0.000	5.475	-8.12	.0659	0.000
3	5.8932	617.233	617.233	0.000	639.9	584.3	2653.71	2073.71	.6899	0.000	5.284	-8.83	.0666	0.000
4	5.9672	618.633	318.633	0.000	639.5	593.7	2673.91	2085.63	.6914	0.000	5.136	-9.34	.0670	0.000
5	6.0352	620.392	620.392	0.000	639.2	593.2	2893.93	2099.03	.6933	0.000	4.954	-10.03	.0675	0.000
6	6.1563	621.430	621.633	0.000	636.9	592.7	2917.75	2113.38	.6948	0.000	4.736	-10.91	.0680	0.000
7	6.2634	622.355	622.355	0.000	636.7	592.4	2939.08	2128.15	.6954	0.000	4.487	-12.02	.0685	0.000
8	6.3933	621.223	621.223	0.000	636.6	562.4	2957.44	2142.95	.6944	0.000	4.209	-13.43	.0690	0.000
9	6.5232	617.779	317.779	0.000	635.5	592.9	2965.62	2157.03	.6912	0.000	3.905	-15.22	.0694	0.000
10	6.6752	611.541	311.541	0.000	636.8	564.0	2371.39	2170.29	.6853	0.000	3.580	-17.53	.0697	0.000
11	6.8321	603.330	603.330	0.000	639.3	595.7	2965.05	2152.34	.6772	0.000	3.235	-20.58	.0699	0.000
12	7.0001	793.139	793.139	0.000	640.2	597.9	2955.45	2192.97	.6675	0.000	2.872	-24.70	.0700	0.000
13	7.1792	782.527	782.527	0.000	641.5	590.5	2943.24	2202.04	.6574	0.000	2.493	-30.49	.0699	0.000
14	7.3697	772.422	772.422	0.000	643.1	543.5	2927.51	2209.50	.6470	0.000	2.092	-39.08	.0698	0.000
15	7.5713	761.355	761.355	0.000	645.5	597.2	2933.09	2215.35	.6362	0.000	1.692	-52.35	.0696	0.000
16	7.7853	751.529	751.529	0.000	645.6	661.8	2383.68	2219.64	.6253	0.000	1.275	-77.46	.0692	0.000
17	8.0121	742.735	742.735	0.000	653.5	667.0	2863.30	2222.47	.6149	0.000	.852	-130.55	.0686	0.000
18	8.2257	739.262	739.232	0.000	660.6	611.1	2655.74	2223.38	.6102	0.000	.636	-186.79	.0682	0.000
19	8.2582	735.931	735.931	0.000	664.1	615.0	2643.15	2223.99	.6050	0.000	.425	-305.32	.0678	0.000
20	8.3737	732.735	732.735	0.000	664.6	619.3	2633.00	2224.33	.6009	0.000	.212	-681.82	.0674	0.000
21	8.5603	729.291	729.291	0.000	668.1	623.8	2627.81	2224.43	.5958	0.000	0.000	0.00	.0669	0.000

STATION 25

GENERAL FLOW PARAMETERS

LOCATION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIDNL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.7906	763.753	763.753	0.000	640.6	559.5	2405.65	2097.57	.6568	0.000	1.323	-17.37	.0667	0.000
2	5.8255	757.542	767.542	0.000	640.4	558.6	2613.49	2103.22	.6526	0.000	1.372	-18.20	.0669	0.000
3	5.9275	747.030	737.330	0.000	639.9	557.0	2850.71	2107.54	.6714	0.000	1.485	-19.19	.0673	0.300
4	6.0023	632.556	362.056	0.000	639.5	555.9	2878.91	2112.72	.6767	0.000	1.547	-19.96	.0676	0.000
5	6.0931	625.312	335.312	0.000	639.2	554.5	2893.95	2116.71	.6820	0.000	1.601	-20.95	.0680	0.000
6	6.1904	824.359	814.334	0.000	636.9	553.7	2917.75	2125.34	.6864	0.000	1.641	-22.18	.0683	0.000
7	6.3033	613.331	319.331	0.000	635.7	552.5	2933.64	2132.41	.6931	0.000	1.662	-23.68	.0686	0.000
8	6.4243	822.337	822.337	0.000	670.6	542.2	2957.44	2139.72	.6961	0.000	1.662	-25.51	.0689	0.000
9	6.5059	623.415	623.403	0.000	635.5	532.1	2963.02	2147.09	.6904	0.000	1.638	-27.76	.0692	0.000
10	6.7054	826.510	823.510	0.000	638.8	542.7	2971.39	2154.30	.6937	0.000	1.591	-30.58	.0693	0.000
11	6.8605	815.110	615.110	0.000	639.3	534.0	2405.65	2161.19	.6683	0.000	1.515	-34.16	.0694	0.000
12	7.0251	807.749	807.743	0.000	640.2	555.3	2355.40	2167.59	.6810	0.000	1.422	-38.87	.0694	0.000
13	7.2024	799.570	799.570	0.000	641.5	565.3	2343.24	2173.38	.6727	0.000	1.297	-45.24	.0693	0.000
14	7.3593	790.826	790.825	0.000	643.1	591.1	2327.51	2178.44	.6638	0.000	1.145	-54.25	.0691	0.000
15	7.5800	751.533	751.533	0.000	645.5	594.6	2333.09	2182.71	.6541	0.000	.966	-67.81	.0688	0.000
16	7.7958	772.216	772.216	0.000	646.6	599.1	2348.68	2186.10	.6438	0.000	.761	-90.38	.0684	0.000
17	8.0210	763.977	763.977	0.000	653.5	635.0	2363.30	2185.57	.6339	0.000	.529	-135.25	.0678	0.000
18	8.1359	760.552	760.552	0.000	656.5	608.4	2653.74	2189.46	.6293	0.000	.404	-179.74	.0675	0.000
19	8.2545	757.043	757.043	0.000	660.1	612.3	2643.16	2190.09	.6248	0.000	.274	-267.98	.0671	0.000
20	8.3733	754.623	754.623	0.000	664.6	616.6	2633.00	2190.48	.6202	0.000	.140	-530.64	.0666	0.000
21	8.5603	751.305	751.335	0.000	668.1	621.1	2827.81	2190.61	.6152	0.000	0.000	0.00	.0661	0.000

STATION 26

GENERAL FLOW PARAMETERS

LOCA TION	RADIUS	VELOCITIES ABSOLUTE	VELOCITIES MERIONL.	VELOCITIES TANGENTL.	TEMPERATURES TOTAL	TEMPERATURES STATIC	PRESSURES TOTAL	PRESSURES STATIC	MACH NUMBER	WHIRL ANGLE	SLOPE ANGLE	RAD.OF CURVTRE.	STATIC DENSITY	INCIDENCE DEVIATION
1	5.7906	740.601	740.601	0.000	640.6	595.0	2806.66	2166.59	.6197	0.000	0.000	0.00	.0683	0.000
2	5.8265	746.639	745.633	0.000	640.4	594.0	2813.49	2166.59	.6252	0.000	.071	0.00	.0684	0.000
3	5.9313	761.232	761.232	0.000	639.9	591.6	2850.71	2166.59	.6387	0.000	.252	0.00	.0687	0.000
4	6.0875	778.355	778.365	0.000	633.5	590.1	2878.91	2166.59	.6471	0.000	.362	0.00	.0689	0.000
5	6.6975	788.615	788.615	0.000	639.2	588.5	2893.98	2166.59	.6567	0.000	.472	0.00	.0690	0.000
6	6.2080	798.351	798.351	0.000	638.9	586.9	2917.76	2166.59	.6663	0.000	.574	0.00	.0692	0.000
7	6.3140	800.251	800.251	0.000	638.7	585.4	2933.68	2166.59	.6750	0.000	.663	0.00	.0694	0.000
8	6.4385	807.684	807.684	0.000	638.6	584.3	2957.44	2166.59	.6819	0.000	.734	0.00	.0695	0.000
9	6.5735	812.347	812.347	0.000	638.5	583.6	2965.62	2166.59	.6862	0.000	.786	0.00	.0696	0.000
10	6.7185	813.644	813.644	0.000	638.6	583.7	2971.39	2166.59	.6873	0.000	.818	0.00	.0696	0.000
11	6.8736	812.034	812.034	0.000	639.3	584.4	2965.68	2166.59	.6855	0.000	.827	0.00	.0695	0.000
12	7.0338	808.323	808.323	0.000	640.2	585.8	2956.48	2166.59	.6815	0.000	.813	0.00	.0694	0.000
13	7.2148	803.566	803.506	0.000	641.5	587.7	2943.24	2166.59	.6764	0.000	.774	0.00	.0691	0.000
14	7.4013	797.736	797.736	0.000	643.1	590.2	2927.51	2166.59	.6702	0.000	.710	0.00	.0689	0.000
15	7.5985	791.155	791.155	0.000	645.5	593.4	2909.09	2166.59	.6628	0.000	.618	0.00	.0685	0.000
16	7.8059	784.840	784.840	0.000	648.8	597.6	2889.68	2166.59	.6545	0.000	.499	0.00	.0680	0.000
17	8.0267	777.550	777.550	0.000	653.5	603.2	2868.30	2166.59	.6461	0.000	.354	0.00	.0674	0.000
18	8.1483	774.901	774.901	0.000	656.6	606.6	2859.74	2166.59	.6420	0.000	.273	0.00	.0670	0.000
19	8.2575	772.433	772.433	0.000	660.1	610.4	2849.16	2166.59	.6380	0.000	.186	0.00	.0666	0.000
20	8.3775	769.816	763.815	0.000	664.0	614.6	2839.06	2166.59	.6337	0.000	.095	0.00	.0661	0.000
21	8.5000	766.758	765.758	0.000	668.1	619.2	2827.81	2166.59	.6288	0.000	0.000	0.00	.0656	0.000

OVERALL PERFORMANCE PARAMETERS

STREAM -LINE	STATION-TO-STATION-PARAMETERS PRESSURE RATIO	STATION-TO-STATION-PARAMETERS DELTA T ON T	STATION-TO-STATION-PARAMETERS ISENTROPIC EFFICIENCY	INLET-TO-STATION-PARAMETERS PRESSURE RATIO	INLET-TO-STATION-PARAMETERS DELTA T ON T	INLET-TO-STATION-PARAMETERS ISENTROPIC EFFICIENCY
1	1.0000	0.0000	0.0000	1.8454	.2351	.8135
2	1.0000	0.0000	0.0000	1.8537	.2347	.8212
3	1.0000	0.0000	0.0000	1.8742	.2336	.8410
4	1.0000	0.0000	0.0000	1.8875	.2330	.8538
5	1.0000	0.0000	0.0000	1.9027	.2324	.8678
6	1.0000	0.0000	0.0000	1.9183	.2318	.8819
7	1.0000	0.0000	0.0000	1.9327	.2314	.8947
8	1.0000	0.0000	0.0000	1.9444	.2311	.9049
9	1.0000	0.0000	0.0000	1.9518	.2311	.9105
10	1.0000	0.0000	0.0000	1.9536	.2315	.9101
11	1.0000	0.0000	0.0000	1.9505	.2326	.9037
12	1.0000	0.0000	0.0000	1.9438	.2343	.8921
13	1.0000	0.0000	0.0000	1.9351	.2367	.8765
14	1.0000	0.0000	0.0000	1.9247	.2399	.8569
15	1.0000	0.0000	0.0000	1.9126	.2444	.8323
16	1.0000	0.0000	0.0000	1.8992	.2508	.8015
17	1.0000	0.0000	0.0000	1.8856	.2600	.7639
18	1.0000	0.0000	0.0000	1.8795	.2659	.7426
19	1.0000	0.0000	0.0000	1.8732	.2726	.7289
20	1.0000	0.0000	0.0000	1.8665	.2801	.6965
21	1.0000	0.0000	0.0000	1.8592	.2881	.6726

MEAN PARAMETERS	STATION-TO-STATION	INLET-TO-STATION
PRESSURE RATIO	1.0000	1.9123
DELTA T ON T	-.0000	.2449
ISEN. EFFICY.	0.0000	.8304

4. ROTOR GEOMETRY

Rotor airfoils were defined on all streamsurfaces and stacked close to the centroids of the manufacturing sections on cartesian planes. The manufacturing sections were determined by mathematically passing a spline through common points on all streamsurface sections and determining the intersections of these splines with cartesian planes normal to the stacking axis. The computer program used to accomplish this was that described in Reference 7, previously cited. However, the interpolation technique and calculation of mechanical properties were taken from Reference 9 which discusses this subject more fully. The computer printout on the following pages presents detailed data on all streamsurface and manufacturing sections. Except for the normalized data defining the streamsurface blade sections, all dimensions are in inches. On the first few pages appear sundry constants and a definition of the 21 streamsurfaces. The streamsurfaces are defined at eight axial locations which coincide with eight of the computing stations used for the aerodynamic design calculations. The origin for the axial locations of the stations is the same as was used for the aerodynamic analyses. The input data printout is completed with a table defining the geometry of each section. Next are shown details of the 21 streamsurface sections. Only the "normalized" data have been reproduced; the equivalent dimensional data would be derived by scaling the nondimensional quantities by the meridional chord of the section. Finally, details of 13 manufacturing sections through the blade are shown. These plane sections, perpendicular to the stack axis, are spaced 0.50 inch apart, and extend slightly beyond the blade in both directions. The "Z" coordinate is measured along the stack axis from the machine axis. The origin for the section coordinates is the stack axis. The "X" direction is parallel to the machine axis, and "X" increases in the direction of flow. The "Y" direction is perpendicular to the "X" direction, and the "Y" coordinate decreases in the direction of rotation. "XS" and "YS" define the suction surface of the section, and "XP" and "YP" define the pressure surface. "XSEMI" and YSEMI" define the leading edge radius. The trailing edge is a straight line joining the pressure and suction surfaces. The manufacturing coordinates shown in this report have not been corrected for blade untwist and represent the blade as it should exist when running at design speed. The actual machining was accomplished with these coordinates rotated about the stacking axis an amount equal and opposite to the predicted angle of untwist as described in Section III.12. No corrections were made for any changes in camber-line shape. Figure 25 shows superimposed plots of developed streamsurface sections. Figure 26 shows a similar view of the manufacturing sections. The larger change of section visible in Figure 26 is due to extrapolation of the airfoil beneath the hub ramp.

USAF - ARL(LF) ARBITRARY CAMBER LINE PROGRAM
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TITLE                          = ROTOR, FINAL DESIGN, 28 DECEMBER 1973
NUMBER OF STREAMSURFACES       = 21
NUMBER OF STATIONS             =  8
NUMBER OF CONSTANT-Z PLANES    = 13
NUMBER OF BLADE DATA POINTS    = 12
NUMBER OF POINTS PER SEGMENT   = 17
NUMBER OF BLADES IN BLADE ROW  = 20
ISTAK                          =  2
IPUNCH                         =  0
IFPLOT                         =  3
IPRINT                         =  0

ZINNER                         =  2.5000
ZOUTER                         =  8.5000
SCALE                          =  2.5000
STACKX                         = -7.0500
PLTSZE                         = 11.0000

LEADING EDGE STATION NUMBER    =  2
TRAILING EDGE STATION NUMBER   =  7
RADII SPECIFYING DEVIATION     =  1
RADII SPECIFYING INCIDENCE     =  6
SENSE OF ROTATION INDICATOR    = -1
DEVIATION CALCULATION INDEX    =  2
NUMBER OF INITIAL S/R TRIALS   =  3

SHAPE FACTOR                   =  1.0000
SOLIDITY TOLERANCE             =   .0050
```

DEVIATION CURVE 1   NUMBER OF POINTS = 6   RADIUS = 3.3000

POINT	NORMALIZED MERIDIONAL CHORD	NORMALIZED DEVIATION DISTRIBUTION
1	0.0000	.1000
2	.2000	.1100
3	.4000	.1500
4	.6000	.2200
5	.8000	.3800
6	1.0000	1.0000

INCIDENCE AND EXTRA DEVIATION DISTRIBUTION

INLET RADIUS	INCIDENCE	EXTRA DEVIATION
2.6500	6.370	2.000
3.8400	5.573	2.000
5.0900	4.853	2.000
6.4200	4.237	2.000
7.7900	3.920	2.000
8.5000	3.693	2.000

STREAMSURFACE GEOMETRY SPECIFICATION

COMPUTING STATION 1 NUMBER OF DESCRIBING POINTS= 2 IFANGS(1)= 0

DESCRIPTION X	DESCRIPTION R	STREAMLINE NUMBER	RADII	AIR ANGLE
-9.7800	2.3397	1	2.3397	-3.0000
-9.7890	8.3397	2	2.5313	-3.0000
		3	3.0129	-3.0000
		4	3.3093	-3.0000
		5	3.6281	-3.0000
		6	3.9584	-3.0000
		7	4.2955	-3.0000
		8	4.6348	-3.0000
		9	4.9762	-3.0000
		10	5.3186	-3.0000
		11	6.0364	-3.0000
		12	5.6619	-3.0000
		13	6.3526	-3.0000
		14	6.7313	-3.0000
		15	7.3532	-3.0000
		16	7.4038	-3.0000
		17	7.7685	-3.0000
		18	7.9530	-3.0000
		19	8.1324	-3.0000
		20	8.3158	-3.0000
		21	8.5303	-3.0000

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COMPUTING STATION 2 NUMBER OF DESCRIBING POINTS= 6 IFANGS(2)= 1

DESCRIPTION X	DESCRIPTION R	STREAMLINE NUMBER	RADII	AIR ANGLE
-8.5105	2.6514	1	2.6514	-40.1755
-8.5545	3.8058	2	2.8173	-41.6534
-8.6103	5.0697	3	3.2451	-44.4984
-8.5318	6.3949	4	3.5161	-45.8129
-8.3115	7.7861	5	3.8079	-47.0055
-8.1619	8.5930	6	4.1126	-48.0923
		7	4.4261	-49.0793
		8	4.7463	-49.9789
		9	5.0713	-50.8034
		10	5.4019	-51.5638
		11	5.7352	-52.2837
		12	6.0711	-52.9802
		13	6.4093	-53.6940
		14	6.7498	-54.4602
		15	7.0931	-55.3150
		16	7.4395	-56.2847
		17	7.7994	-57.3776
		18	7.9657	-57.9674
		19	8.1430	-58.5821
		20	8.3211	-58.2171
		21	8.5093	-59.8664

COMPUTING STATION 3 NUMBER OF DESCRIBING POINTS= 4 IFANGS(3)= 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-7.9850	3.0363	1	3.0363	-29.8616
-8.0888	5.0710	2	3.1841	-30.6318
-7.9608	6.4808	3	3.5642	-33.4561
-7.7250	8.5830	4	3.8075	-35.2780
		5	4.0727	-37.2768
		6	4.3536	-39.1511
		7	4.6454	-40.9422
		8	4.9444	-42.7077
		9	5.2484	-44.3879
		10	5.5561	-46.0628
		11	5.8669	-47.7521
		12	6.1888	-49.4840
		13	6.4977	-51.0369
		14	6.8182	-52.6928
		15	7.1428	-54.3808
		16	7.4727	-56.1024
		17	7.8086	-57.8366
		18	7.9789	-58.6997
		19	8.1508	-59.5636
		20	8.3245	-60.4484
		21	8.5883	-61.3924

COMPUTING STATION 4 NUMBER OF DESCRIBING POINTS= 4 IFANGS(4)= 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-7.3588	3.3893	1	3.3893	-20.2884
-7.3958	5.3858	2	3.5238	-21.7042
-7.4158	6.5658	3	3.8717	-25.1172
-7.3118	8.5888	4	4.0953	-27.0783
		5	4.3367	-29.1599
		6	4.5963	-31.3668
		7	4.8642	-33.7118
		8	5.1393	-36.1462
		9	5.4195	-38.5986
		10	5.7047	-40.9907
		11	5.9937	-43.2729
		12	6.2865	-45.4836
		13	6.5836	-47.6497
		14	6.8852	-49.7981
		15	7.1929	-51.9434
		16	7.5075	-54.0887
		17	7.8382	-56.2254
		18	7.9946	-57.2725
		19	8.1611	-58.2957
		20	8.3297	-59.2803
		21	8.5888	-60.1792

COMPUTING STATION 5   NUMBER OF DESCRIBING POINTS= 4   IFANGS(5)= 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-6.6810	3.7385	1	3.7385	-12.5374
-6.8810	5.4930	2	3.8564	-14.1064
-6.8700	6.6500	3	4.1649	-17.8291
-6.9400	8.5000	4	4.3652	-19.6178
		5	4.5849	-21.4131
		6	4.8181	-23.8240
		7	5.0612	-26.7973
		8	5.3127	-31.0360
		9	5.5712	-33.2481
		10	5.8357	-35.2330
		11	6.1056	-39.0127
		12	6.3805	-41.6171
		13	6.6634	-44.1232
		14	6.9456	-46.6140
		15	7.2372	-49.0950
		16	7.5364	-51.5696
		17	7.8453	-54.0346
		18	8.0539	-55.2649
		19	8.1657	-56.4912
		20	8.3313	-57.7141
		21	8.5000	-58.9321

COMPUTING STATION 6   NUMBER OF DESCRIBING POINTS= 4   IFANGS(6)= [illegible]

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-6.2510	4.0884	1	4.0884	-3.5861
-6.1800	5.7030	2	4.1897	-5.0802
-6.3000	6.7250	3	4.4587	-8.0458
-6.5600	8.5000	4	4.6349	-11.1985
		5	4.8386	-13.8343
		6	5.0399	-16.9475
		7	5.2584	-20.3933
		8	5.4656	-24.0184
		9	5.7199	-27.6801
		10	5.9607	-31.2026
		11	6.2083	-34.5161
		12	6.4630	-37.6531
		13	6.7249	-40.6369
		14	6.9946	-43.4794
		15	7.2723	-46.2193
		16	7.5591	-48.9044
		17	7.8571	-51.6116
		18	8.0111	-53.0879
		19	8.1692	-54.4482
		20	8.3319	-55.9170
		21	8.5083	-57.4391

COMPUTING STATION 7 NUMBER OF DESCRIBING POINTS= 9 IFANGS(7)= 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-5.6650	4.4612	1	4.4612	9.1000
-5.6560	4.6800	2	4.5363	7.6500
-5.6180	4.8000	3	4.7659	2.0044
-5.5393	5.0000	4	4.9314	-2.9292
-5.5217	5.1064	5	5.1054	-7.6153
-5.5985	5.8532	6	5.2511	-12.4312
-5.7203	6.7945	7	5.4646	-16.9548
-5.9516	7.8661	8	5.6573	-21.3747
-6.1349	8.5000	9	5.8612	-25.6514
		10	6.0769	-29.7064
		11	6.3036	-33.4738
		12	6.5493	-36.9488
		13	6.7861	-40.1715
		14	7.0439	-43.2049
		15	7.3357	-46.0755
		16	7.5819	-48.7966
		17	7.8713	-51.3921
		18	8.0215	-52.6570
		19	8.1769	-53.9333
		20	8.3353	-55.2527
		21	8.5000	-56.6421

COMPUTING STATION 8 NUMBER OF DESCRIBING POINTS= 4 IFANGS(8)= 0

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-5.5200	4.5534	1	4.5534	-3.0000
-5.3503	5.2000	2	4.6431	-3.0000
-5.3083	5.8000	3	4.8677	-3.0000
-5.7303	8.5000	4	5.0155	-3.0000
		5	5.1785	-3.0000
		6	5.3533	-3.0000
		7	5.5392	-3.0000
		8	5.7326	-3.0000
		9	5.9359	-3.0000
		10	6.1478	-3.0000
		11	6.3680	-3.0000
		12	6.5966	-3.0000
		13	6.8336	-3.0000
		14	7.0803	-3.0000
		15	7.3369	-3.0000
		16	7.6352	-3.0000
		17	7.8666	-3.0000
		18	8.0331	-3.0000
		19	8.1835	-3.0000
		20	8.3389	-3.0000
		21	8.5083	-3.0000

SECTION GEOMETRY SPECIFICATION

STREAMLINE NUMBER	SLD CL PT	IN.DEL S/R0	CONSID LE RD CRV	NO.ALD INFL. PTS	LE RADIUS /CHORD	MAX THICK /CHORD	TE THICK /2*CHORD	POINT OF MAX THICK	START VAL OF S/R	X STACK OFFSET	Y STACK OFFSET
1.00	0.000	.040	0.0000	0.0000	.00431	.06000	.00718	.5600	-.2000	.013000	.040000
2.00	0.000	.040	0.0000	0.0000	.00392	.05800	.00721	.5680	-.1870	.008000	.037500
3.00	0.000	.040	0.0000	0.0000	.00303	.05600	.00433	.5760	-.1740	.014000	.035000
4.00	0.000	.040	0.0000	0.0000	.00254	.05400	.00175	.5900	-.1620	-.005000	.035000
5.00	0.000	.040	0.0000	0.0000	.00212	.05250	.00149	.5990	-.1500	-.020000	.040000
6.00	0.000	.040	0.0000	1.0000	.00195	.05000	.00147	.6020	-.2000	-.010000	.030000
7.00	0.000	.040	0.0000	1.0000	.00177	.04750	.00146	.6060	-.2500	-.004000	.020000
9.00	0.000	.040	0.0000	1.0000	.00143	.04230	.00143	.6200	-.3000	.035000	-0.000000
13.00	0.000	.040	0.0000	1.0000	.00137	.03250	.00137	.6500	-.8000	.020000	-0.000000
17.00	0.000	.040	0.0000	1.0000	.00131	.02650	.00131	.6800	-1.5000	.018000	-0.000000
19.00	0.000	.040	0.0000	1.0000	.00128	.02550	.00128	.6900	-1.7000	.005000	-0.000000
21.00	0.000	.040	0.0000	1.0000	.00125	.02500	.00125	.7000	-1.7000	-.001000	-0.000000

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 1

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BETA1     =-33.785    (BLADE INLET ANGLE.)
BETA2     = 17.272    (BLADE OUTLET ANGLE.)
YZERO     =  .00431   (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T         =  .06000   (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE      =  .00718   (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z         =  .5600    (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD      = 5.3719    (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.0315

STAGGER ANGLE  =-14.648

CAMBER ANGLE   =-51.057

SECTION AREA   = .04659

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

         XBAR =  .50876
         YBAR = -.22290

SECOND MOMENTS OF AREA ABOUT CENTROID

         IX   =  .00124
         IY   =  .00272
         IXY  = -.00172

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-15.135

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

         IPX  = .00034     (AT-15.135 WITH 'X' AXIS)
         IPY  = .00291     (AT-15.135 WITH 'Y' AXIS)
```

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00445	0.00000	-33.785	.00889	.00692	.00369	.00197	-.00369
2	.01765	-.00882	-33.696	.01101	.02070	-.00424	.01459	-.01340
3	.03085	-.01761	-33.581	.01313	.03448	-.01214	.02722	-.02307
4	.04405	-.02635	-33.438	.01524	.04825	-.01999	.03986	-.03271
5	.05726	-.03504	-33.269	.01737	.06201	-.02779	.05250	-.04229
6	.07046	-.04367	-33.072	.01941	.07576	-.03554	.06516	-.05180
7	.08366	-.05223	-32.847	.02147	.08949	-.04321	.07784	-.06125
8	.09687	-.06071	-32.594	.02351	.10320	-.05081	.09053	-.07062
9	.11007	-.06911	-32.312	.02552	.11689	-.05833	.10325	-.07989
10	.12327	-.07741	-32.001	.02753	.13056	-.06575	.11599	-.08907
11	.13648	-.08561	-31.660	.02946	.14420	-.07318	.12875	-.09814
12	.14968	-.09369	-31.289	.03135	.15782	-.08030	.14154	-.10709
13	.16288	-.10165	-30.886	.03323	.17141	-.08740	.15435	-.11591

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17618	-.10948	-30.452	.03506	.18497	-.09437	.16720	-.12459
15	.18929	-.11718	-29.986	.03684	.19849	-.10122	.18008	-.13313
16	.20249	-.12472	-29.485	.03858	.21198	-.10793	.19300	-.14151
17	.21569	-.13213	-28.951	.04027	.22544	-.11449	.20595	-.14972
18	.22791	-.13873	-28.439	.04177	.23775	-.12037	.21786	-.15710
19	.23991	-.14522	-27.913	.04323	.25003	-.12612	.22980	-.16432
20	.25213	-.15156	-27.374	.04464	.26229	-.13174	.24176	-.17139
21	.26416	-.15776	-26.821	.04601	.27452	-.13723	.25376	-.17829
22	.27625	-.16381	-26.254	.04732	.28671	-.14259	.26578	-.18503
23	.28836	-.16971	-25.673	.04859	.29888	-.14781	.27783	-.19160
24	.30047	-.17545	-25.078	.04980	.31102	-.15290	.28991	-.19801
25	.31258	-.18104	-24.465	.05096	.32313	-.15785	.30203	-.20425
26	.32469	-.18647	-23.844	.05207	.33522	-.16266	.31417	-.21029
27	.33683	-.19175	-23.204	.05312	.34727	-.16733	.32634	-.21616
28	.34891	-.19686	-22.549	.05412	.35929	-.17187	.33854	-.22185
29	.36112	-.20180	-21.879	.05506	.37128	-.17626	.35076	-.22735
30	.37323	-.20658	-21.194	.05595	.38325	-.18050	.36302	-.23266
31	.38525	-.21119	-20.493	.05677	.39518	-.18450	.37531	-.23778
32	.39716	-.21563	-19.775	.05754	.40709	-.18856	.38762	-.24271
33	.40947	-.21990	-19.043	.05825	.41897	-.19237	.39996	-.24743
34	.42145	-.22395	-18.322	.05889	.43071	-.19600	.41219	-.25190
35	.43343	-.22784	-17.624	.05947	.44243	-.19950	.42442	-.25618
36	.44541	-.23157	-16.951	.05999	.45419	-.20288	.43666	-.26026
37	.45739	-.23514	-16.304	.06045	.46587	-.20614	.44890	-.26415
38	.46937	-.23858	-15.683	.06085	.47759	-.20929	.46114	-.26787
39	.48155	-.24187	-15.089	.06118	.48931	-.21234	.47338	-.27141
40	.49337	-.24514	-14.522	.06145	.50103	-.21530	.48562	-.27478
41	.50531	-.24808	-13.984	.06166	.51276	-.21817	.49786	-.27800
42	.51729	-.25131	-13.474	.06180	.52449	-.22096	.51009	-.28106
43	.52927	-.25303	-12.991	.06188	.53622	-.22358	.52231	-.28397
44	.54125	-.25654	-12.541	.06188	.54797	-.22634	.53453	-.28674
45	.55323	-.25916	-12.119	.06182	.55972	-.22893	.54674	-.28938
46	.56521	-.26169	-11.728	.06170	.57148	-.23148	.55894	-.29189
47	.57719	-.26413	-11.367	.06151	.58325	-.23399	.57113	-.29428
48	.58917	-.26651	-11.037	.06124	.59503	-.23645	.58331	-.29656
49	.60115	-.26881	-10.738	.06092	.60682	-.23888	.59547	-.29874
50	.61315	-.27105	-10.432	.06053	.61863	-.24129	.60767	-.30082
51	.62515	-.27323	-10.383	.06007	.63041	-.24365	.61990	-.30280
52	.63716	-.27532	-9.697	.05959	.64217	-.24597	.63215	-.30467
53	.64916	-.27732	-9.253	.05896	.65390	-.24822	.64442	-.30642
54	.66116	-.27923	-8.772	.05832	.66561	-.25041	.65672	-.30804
55	.67316	-.28102	-8.246	.05761	.67730	-.25252	.66903	-.30953
56	.68517	-.28278	-7.625	.05683	.68896	-.25454	.68137	-.31086
57	.69717	-.28426	-7.359	.05599	.70061	-.25647	.69373	-.31204
58	.70917	-.28567	-6.598	.05509	.71224	-.25830	.70610	-.31305
59	.72117	-.28694	-5.691	.05413	.72386	-.26001	.71849	-.31388
60	.73318	-.28806	-4.939	.05311	.73546	-.26161	.73089	-.31452
61	.74518	-.28902	-4.141	.05203	.74706	-.26307	.74330	-.31495
62	.75718	-.28980	-3.297	.05088	.75865	-.26440	.75572	-.31520
63	.76919	-.29039	-2.407	.04968	.77023	-.26558	.76814	-.31521
64	.78119	-.29080	-1.472	.04842	.78181	-.26660	.78057	-.31500
65	.79319	-.29101	-.493	.04709	.79339	-.26746	.79299	-.31455
66	.80598	-.29100	.590	.04562	.80575	-.26819	.80621	-.31361
67	.81877	-.29075	1.662	.04407	.81813	-.26872	.81941	-.31278
68	.83155	-.29026	2.752	.04246	.83054	-.26905	.83257	-.31146
69	.84434	-.28952	3.853	.04078	.84297	-.26918	.84571	-.30986

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85713	-.28853	4.954	.03902	.85545	-.26910	.85882	-.30797
71	.86992	-.28730	6.064	.03720	.86795	-.26881	.87188	-.30580
72	.88271	-.28582	7.179	.03530	.88050	-.26830	.88491	-.30333
73	.89550	-.28408	8.298	.03333	.89309	-.26759	.89790	-.30057
74	.90828	-.28209	9.419	.03129	.90572	-.26665	.91084	-.29752
75	.92107	-.27984	10.543	.02917	.91840	-.26550	.92374	-.29418
76	.93386	-.27733	11.667	.02698	.93113	-.26412	.93659	-.29054
77	.94665	-.27455	12.792	.02471	.94391	-.26251	.94938	-.28660
78	.95944	-.27152	13.916	.02236	.95675	-.26067	.96212	-.28237
79	.97222	-.26822	15.038	.01992	.96964	-.25860	.97481	-.27784
80	.98501	-.26465	16.157	.01741	.98259	-.25629	.98744	-.27301
81	.99780	-.26081	17.272	.01481	.99560	-.25373	1.00000	-.26788

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 2
****

BETA1	=-35.332	(BLADE INLET ANGLE.)
BETA2	= 16.145	(BLADE OUTLET ANGLE.)
YZERO	= .00392	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .05800	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00721	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5680	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 3.3313	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.0335

STAGGER ANGLE =-16.032

CAMBER ANGLE =-51.527

SECTION AREA = .04555

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .51074
YBAR = -.23664

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00027
IY = .00266
IXY = -.00078

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-16.490

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00004 (AT-16.490 WITH 'X' AXIS)
IPY = .00289 (AT-16.490 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00407	0.00000	-35.382	.00814	.00643	.00332	.00171	-.00332
2	.01720	-.00928	-35.162	.01021	.02014	-.00511	.01426	-.01346
3	.03032	-.01849	-34.926	.01227	.03383	-.01346	.02681	-.02352
4	.04345	-.02761	-34.676	.01432	.04752	-.02172	.03937	-.03350
5	.05657	-.03665	-34.410	.01635	.06119	-.02990	.05195	-.04339
6	.06970	-.04559	-34.128	.01837	.07485	-.03799	.06454	-.05319
7	.08282	-.05444	-33.829	.02037	.08849	-.04598	.07715	-.06290
8	.09594	-.06318	-33.515	.02234	.10211	-.05387	.08970	-.07249
9	.10907	-.07182	-33.184	.02428	.11571	-.06166	.10242	-.08196
10	.12219	-.08035	-32.835	.02620	.12930	-.06934	.11509	-.09135
11	.13532	-.08876	-32.469	.02808	.14286	-.07691	.12778	-.10060
12	.14844	-.09705	-32.086	.02993	.15639	-.08437	.14053	-.10973
13	.16157	-.10521	-31.684	.03174	.16991	-.09171	.15323	-.11872

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17469	-.11325	-31.264	.03351	.18339	-.09892	.16600	-.12757
15	.18782	-.12115	-30.824	.03524	.19685	-.10602	.17879	-.13628
16	.20094	-.12891	-30.365	.03693	.21028	-.11298	.19161	-.14484
17	.21407	-.13653	-29.887	.03857	.22368	-.11981	.20446	-.15325
18	.22631	-.14350	-29.423	.04006	.23615	-.12605	.21647	-.16094
19	.23855	-.15033	-28.944	.04150	.24859	-.13217	.22851	-.16849
20	.25079	-.15704	-28.449	.04293	.26101	-.13818	.24057	-.17590
21	.26303	-.16360	-27.937	.04425	.27340	-.14405	.25267	-.18315
22	.27527	-.17002	-27.409	.04556	.28576	-.14980	.26479	-.19024
23	.28752	-.17629	-26.864	.04681	.29809	-.15541	.27694	-.19717
24	.29976	-.18242	-26.301	.04802	.31040	-.16089	.28912	-.20394
25	.31200	-.18839	-25.721	.04917	.32267	-.16624	.30133	-.21054
26	.32424	-.19421	-25.123	.05028	.33491	-.17145	.31357	-.21697
27	.33648	-.19987	-24.507	.05133	.34713	-.17652	.32584	-.22322
28	.34872	-.20537	-23.872	.05232	.35931	-.18145	.33814	-.22929
29	.36096	-.21070	-23.218	.05326	.37146	-.18623	.35046	-.23518
30	.37320	-.21587	-22.545	.05415	.38358	-.19087	.36282	-.24088
31	.38545	-.22087	-21.852	.05497	.39568	-.19536	.37522	-.24638
32	.39769	-.22569	-21.140	.05574	.40774	-.19969	.38764	-.25168
33	.40993	-.23033	-20.407	.05645	.41977	-.20388	.40009	-.25679
34	.42198	-.23473	-19.688	.05710	.43160	-.20785	.41236	-.26161
35	.43403	-.23896	-18.994	.05768	.44341	-.21169	.42464	-.26623
36	.44608	-.24303	-18.324	.05821	.45523	-.21540	.43693	-.27065
37	.45812	-.24694	-17.681	.05867	.46703	-.21899	.44921	-.27489
38	.47017	-.25071	-17.065	.05908	.47884	-.22247	.46150	-.27895
39	.48222	-.25434	-16.476	.05943	.49065	-.22585	.47380	-.28283
40	.49427	-.25784	-15.916	.05971	.50246	-.22913	.48608	-.28655
41	.50632	-.26121	-15.384	.05994	.51427	-.23232	.49837	-.29011
42	.51837	-.26447	-14.882	.06010	.52609	-.23543	.51065	-.29351
43	.53042	-.26762	-14.410	.06020	.53791	-.23847	.52293	-.29677
44	.54247	-.27067	-13.968	.06023	.54974	-.24144	.53520	-.29989
45	.55452	-.27362	-13.558	.06021	.56157	-.24436	.54746	-.30288
46	.56656	-.27648	-13.179	.06010	.57342	-.24722	.55971	-.30574
47	.57861	-.27926	-12.831	.05994	.58527	-.25004	.57196	-.30848
48	.59066	-.28197	-12.515	.05971	.59713	-.25282	.58419	-.31112
49	.60271	-.28461	-12.231	.05942	.60901	-.25556	.59642	-.31365
50	.61482	-.28721	-11.949	.05907	.62093	-.25831	.60871	-.31610
51	.62692	-.28973	-11.602	.05865	.63282	-.26101	.62102	-.31845
52	.63903	-.29217	-11.217	.05816	.64468	-.26365	.63337	-.32070
53	.65113	-.29453	-10.785	.05761	.65652	-.26623	.64574	-.32282
54	.66324	-.29678	-10.306	.05700	.66833	-.26874	.65814	-.32482
55	.67534	-.29893	-9.779	.05632	.68012	-.27117	.67056	-.32668
56	.68745	-.30095	-9.204	.05558	.69189	-.27352	.68300	-.32839
57	.69955	-.30265	-8.583	.05478	.70364	-.27576	.69546	-.32993
58	.71165	-.30460	-7.908	.05392	.71536	-.27790	.70795	-.33130
59	.72376	-.30621	-7.186	.05299	.72707	-.27992	.72045	-.33249
60	.73586	-.30765	-6.415	.05200	.73877	-.28181	.73296	-.33349
61	.74797	-.30892	-5.595	.05095	.75045	-.28357	.74549	-.33428
62	.76007	-.31002	-4.725	.04984	.76213	-.28518	.75802	-.33486
63	.77218	-.31092	-3.805	.04867	.77379	-.28664	.77056	-.33520
64	.78428	-.31162	-2.836	.04744	.78546	-.28793	.78311	-.33532
65	.79639	-.31212	-1.817	.04614	.79712	-.28906	.79566	-.33518
66	.80898	-.31240	-.727	.04473	.80927	-.29003	.80870	-.33476
67	.82158	-.31244	.371	.04325	.82144	-.29081	.82172	-.33406
68	.83418	-.31223	1.477	.04171	.83364	-.29139	.83471	-.33308
69	.84677	-.31179	2.590	.04009	.84587	-.29176	.84768	-.33181

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85937	-.31109	3.709	.03841	.85812	-.29193	.86061	-.33026
71	.87196	-.31015	4.833	.03665	.87042	-.29189	.87351	-.32841
72	.88456	-.30896	5.961	.03482	.88275	-.29164	.88637	-.32628
73	.89715	-.30752	7.093	.03293	.89512	-.29118	.89919	-.32386
74	.90975	-.30583	8.226	.03096	.90753	-.29051	.91196	-.32115
75	.92234	-.30388	9.361	.02891	.91999	-.28962	.92470	-.31814
76	.93494	-.30167	10.497	.02679	.93250	-.28850	.93738	-.31484
77	.94754	-.29921	11.632	.02459	.94506	-.28717	.95001	-.31125
78	.96013	-.29649	12.765	.02231	.95767	-.28561	.96260	-.30737
79	.97273	-.29350	13.895	.01995	.97033	-.28382	.97512	-.30318
80	.98532	-.29026	15.022	.01759	.98305	-.28180	.98759	-.29871
81	.99792	-.28674	16.145	.01497	.99584	-.27955	1.00000	-.29393

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 3

BETA1	=-36.531	(BLADE INLET ANGLE.)
BETA2	= 10.913	(BLADE OUTLET ANGLE.)
YZERO	= .00303	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .05600	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .01433	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5760	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 3.2754	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0632

STAGGER ANGLE =-19.519

CAMBER ANGLE =-49.444

SECTION AREA = .04473

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .50593
YBAR = -.26926

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00237
IY = .00252
IXY = -.00091

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-20.082

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00334 (AT-20.082 WITH 'X' AXIS)
IPY = .00285 (AT-20.082 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00321	0.00000	-36.531	.00643	.00521	.00251	.00121	-.00251
2	.01599	-.01011	-38.2[illegible]	.00849	.01861	-.00678	.01336	-.01345
3	.02875	-.02011	-37.889	.01054	.03199	-.01595	.02552	-.02427
4	.04153	-.02999	-37.556	.01258	.04536	-.02501	.03770	-.03498
5	.05430	-.03975	-37.216	.01460	.05872	-.03394	.04989	-.04557
6	.06708	-.04939	-36.868	.01660	.07206	-.04275	.06210	-.05603
7	.07985	-.05891	-36.512	.01858	.08538	-.05145	.07432	-.06638
8	.09262	-.06830	-36.148	.02053	.09868	-.06002	.08657	-.07659
9	.10540	-.07757	-35.775	.02245	.11196	-.06846	.09883	-.08668
10	.11817	-.08671	-35.394	.02435	.12522	-.07679	.11112	-.09664
11	.13094	-.09572	-35.004	.02621	.13846	-.08498	.12342	-.10646
12	.14371	-.10460	-34.605	.02805	.15168	-.09306	.13575	-.11614
13	.15649	-.11335	-34.197	.02984	.16487	-.10101	.14810	-.12569

POINT	M E A N L I N E D A T A				SURFACE COORDINATE DATA			
NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
14	.16926	-.12196	-33.780	.03160	.17604	-.10883	.16048	-.13509
15	.18203	-.13043	-33.353	.03331	.19119	-.11652	.17287	-.14435
16	.19481	-.13877	-32.917	.03499	.20431	-.12409	.18530	-.15346
17	.20758	-.14697	-32.471	.03662	.21741	-.13152	.19775	-.16242
18	.22003	-.1546[illegible]	-32.026	.03816	.23015	-.13865	.20991	-.17100
19	.23248	-.16255	-31.568	.03967	.24286	-.14565	.22210	-.17944
20	.24493	-.17013	-31.099	.04112	.25555	-.15252	.23431	-.18773
21	.25738	-.17757	-30.617	.04253	.26821	-.15927	.24655	-.19587
22	.26984	-.18486	-30.122	.04389	.28085	-.16588	.25882	-.20365
23	.28229	-.19201	-29.614	.04520	.29345	-.17237	.27112	-.21166
24	.29474	-.19902	-29.093	.04646	.30603	-.17872	.28345	-.21932
25	.30719	-.20587	-28.559	.04766	.31858	-.18494	.29580	-.22680
26	.31964	-.21257	-28.009	.04881	.33110	-.19102	.30818	-.23412
27	.33209	-.21912	-27.447	.04991	.34360	-.19697	.32059	-.24126
28	.34455	-.22551	-26.870	.05095	.35606	-.20278	.33303	-.24823
29	.35700	-.23173	-26.279	.05194	.36850	-.20845	.34550	-.25502
30	.36945	-.23780	-25.674	.05286	.38090	-.21398	.35800	-.26162
31	.38190	-.24370	-25.053	.05373	.39328	-.21937	.37053	-.26804
32	.39435	-.24944	-24.417	.05454	.40563	-.22461	.38308	-.27427
33	.40680	-.25501	-23.766	.05529	.41795	-.22971	.39566	-.28031
34	.41893	-.26027	-23.132	.05596	.42992	-.23454	.40794	-.28600
35	.43106	-.26537	-22.515	.05657	.44189	-.23924	.42022	-.29150
36	.44318	-.27032	-21.914	.05713	.45384	-.24382	.43252	-.29682
37	.45531	-.27513	-21.330	.05762	.46579	-.24829	.44483	-.30197
38	.46743	-.27979	-20.764	.05805	.47772	-.25265	.45714	-.30694
39	.47956	-.28433	-20.217	.05843	.48965	-.25691	.46946	-.31174
40	.49168	-.28873	-19.689	.05874	.50158	-.26107	.48179	-.31638
41	.50381	-.29301	-19.180	.05899	.51350	-.26515	.49412	-.32086
42	.51594	-.29717	-18.692	.05918	.52542	-.26914	.50645	-.32519
43	.52806	-.30121	-18.224	.05931	.53733	-.27305	.51879	-.32938
44	.54019	-.30515	-17.777	.05937	.54925	-.27689	.53112	-.33342
45	.55231	-.30899	-17.351	.05936	.56116	-.28066	.54346	-.33732
46	.56444	-.31273	-16.947	.05929	.57308	-.28437	.55580	-.34109
47	.57656	-.31638	-16.565	.05916	.58500	-.28803	.56813	-.34473
48	.58869	-.31995	-16.206	.05895	.59692	-.29164	.58046	-.34825
49	.60081	-.32343	-15.869	.05868	.60884	-.29521	.59279	-.35166
50	.61319	-.32688	-15.520	.05834	.62090	-.29878	.60529	-.35499
51	.62538	-.33025	-15.134	.05793	.63294	-.30229	.61782	-.35821
52	.63766	-.33352	-14.709	.05745	.64495	-.30574	.63037	-.36131
53	.64994	-.33670	-14.245	.05689	.65694	-.30912	.64294	-.36427
54	.66222	-.33976	-13.742	.05627	.66891	-.31243	.65554	-.36708
55	.67451	-.34270	-13.199	.05557	.68085	-.31565	.66816	-.36975
56	.68679	-.34551	-12.616	.05480	.69277	-.31878	.68080	-.37225
57	.69907	-.34819	-11.992	.05396	.70467	-.32180	.69346	-.37459
58	.71135	-.35073	-11.328	.05305	.71656	-.32472	.70614	-.37674
59	.72363	-.35311	-10.622	.05206	.72843	-.32753	.71883	-.37870
60	.73591	-.35533	-9.875	.05100	.74029	-.33021	.73154	-.38046
61	.74820	-.35738	-9.086	.04987	.75213	-.33276	.74426	-.38201
62	.76048	-.35926	-8.254	.04866	.76397	-.33518	.75698	-.38334
63	.77276	-.36095	-7.380	.04738	.77580	-.33745	.76972	-.38444
64	.78504	-.36244	-6.463	.04602	.78763	-.33957	.78245	-.38530
65	.79732	-.36373	-5.504	.04459	.79946	-.34153	.79518	-.38592
66	.80994	-.36483	-4.495	.04304	.81162	-.34336	.80825	-.38628
67	.82255	-.36571	-3.480	.04140	.82381	-.34504	.82129	-.38637
68	.83516	-.36636	-2.461	.03969	.83601	-.34654	.83431	-.38619
69	.84777	-.36679	-1.437	.03789	.84825	-.34785	.84730	-.38573

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.86039	-.35700	-.410	.03601	.86052	-.34899	.86026	-.38500
71	.87300	-.36697	.619	.03404	.87282	-.34996	.87318	-.38399
72	.88561	-.36672	1.651	.03198	.88515	-.35074	.88607	-.38270
73	.89823	-.36625	2.683	.02983	.89753	-.35135	.89893	-.38114
74	.91084	-.36554	3.717	.02759	.90995	-.35177	.91173	-.37931
75	.92345	-.36461	4.750	.02526	.92241	-.35202	.92450	-.37719
76	.93607	-.36344	5.783	.02283	.93492	-.35209	.93722	-.37480
77	.94868	-.36205	6.815	.02030	.94747	-.35197	.94988	-.37213
78	.96129	-.36043	7.844	.01768	.96009	-.35167	.96250	-.36919
79	.97390	-.35858	8.871	.01495	.97275	-.35119	.97506	-.36596
80	.98652	-.35649	9.894	.01212	.98548	-.35052	.98756	-.36245
81	.99913	-.35418	10.913	.00918	.99826	-.34967	1.00000	-.35868

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 4

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BETA1     =-40.029    (BLADE INLET ANGLE.)
BETA2     =  5.782    (BLADE OUTLET ANGLE.)
YZERO     =  .00254   (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T         =  .05400   (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE      =  .00175   (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z         =  .5900    (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD      = 3.2970    (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.0751

STAGGER ANGLE  =-21.546

CAMBER ANGLE   =-45.811

SECTION AREA   = .04357

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

        XBAR =  .50351
        YBAR = -.28879

SECOND MOMENTS OF AREA ABOUT CENTROID

        IX   =  .00942
        IY   =  .00238
        IXY  = -.00395

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-21.989

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

        IPX  = .00033      (AT-21.989 WITH 'X' AXIS)
        IPY  = .00277      (AT-21.989 WITH 'Y' AXIS)
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00273	0.00000	-40.029	.00546	.00449	.00209	.00097	-.00209
2	.01514	-.01037	-39.769	.00742	.01751	-.00752	.01276	-.01323
3	.02754	-.02065	-39.497	.00938	.03052	-.01703	.02456	-.02426
4	.03995	-.03082	-39.213	.01132	.04352	-.02644	.03637	-.03520
5	.05235	-.04089	-38.917	.01326	.05651	-.03574	.04819	-.04604
6	.06476	-.05085	-38.609	.01515	.06948	-.04493	.06003	-.05677
7	.07716	-.06070	-38.288	.01704	.08244	-.05401	.07188	-.06739
8	.08957	-.07043	-37.954	.01890	.09538	-.06298	.08375	-.07789
9	.10197	-.08005	-37.607	.02074	.10830	-.07183	.09564	-.08827
10	.11438	-.08955	-37.247	.02256	.12120	-.08057	.10755	-.09852
11	.12678	-.09891	-36.873	.02434	.13408	-.08918	.11948	-.10865
12	.13919	-.10815	-36.485	.02610	.14694	-.09766	.13143	-.11865
13	.15159	-.11726	-36.082	.02782	.15978	-.10602	.14340	-.12850

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16400	-.12623	-35.665	.02951	.17260	-.11425	.15539	-.13822
15	.17640	-.13506	-35.233	.03116	.18539	-.12234	.16741	-.14779
16	.18881	-.14375	-34.785	.03277	.19815	-.13030	.17946	-.15721
17	.20121	-.15230	-34.321	.03435	.21089	-.13811	.19153	-.16648
18	.21359	-.16067	-33.846	.03588	.22358	-.14578	.20360	-.17557
19	.22597	-.16890	-33.364	.03736	.23624	-.15330	.21569	-.18450
20	.23835	-.17697	-32.874	.03880	.24888	-.16058	.22782	-.19327
21	.25072	-.18490	-32.377	.04020	.26149	-.16792	.23996	-.20188
22	.26310	-.19267	-31.871	.04156	.27407	-.17503	.25213	-.21032
23	.27548	-.20029	-31.358	.04286	.28663	-.18199	.26433	-.21859
24	.28786	-.20776	-30.837	.04412	.29917	-.18882	.27655	-.22670
25	.30024	-.21507	-30.308	.04533	.31168	-.19550	.28880	-.23464
26	.31262	-.22223	-29.771	.04649	.32416	-.20205	.30108	-.24240
27	.32500	-.22923	-29.226	.04759	.33661	-.20846	.31338	-.25000
28	.33737	-.23608	-28.672	.04865	.34904	-.21474	.32570	-.25742
29	.34975	-.24277	-28.110	.04965	.36145	-.22087	.33805	-.26467
30	.36213	-.24930	-27.540	.05060	.37383	-.22687	.35043	-.27174
31	.37451	-.25568	-26.961	.05150	.38618	-.23273	.36283	-.27863
32	.38689	-.26190	-26.374	.05234	.39851	-.23845	.37526	-.28534
33	.39927	-.26795	-25.778	.05313	.41082	-.24403	.38771	-.29188
34	.41126	-.27367	-25.200	.05384	.42272	-.24931	.39980	-.29803
35	.42325	-.27924	-24.631	.05453	.43461	-.25447	.41190	-.30401
36	.43524	-.28467	-24.070	.05510	.44648	-.25952	.42401	-.30982
37	.44724	-.28996	-23.518	.05565	.45834	-.26445	.43614	-.31547
38	.45923	-.29511	-22.976	.05614	.47019	-.26927	.44827	-.32095
39	.47122	-.30013	-22.443	.05658	.48202	-.27398	.46042	-.32628
40	.48322	-.30502	-21.921	.05696	.49385	-.27860	.47258	-.33144
41	.49521	-.30978	-21.409	.05729	.50566	-.28312	.48475	-.33645
42	.50723	-.31442	-20.907	.05756	.51747	-.28754	.49693	-.34131
43	.51919	-.31895	-20.417	.05777	.52927	-.29188	.50912	-.34602
44	.53119	-.32335	-19.939	.05792	.54106	-.29613	.52131	-.35058
45	.54318	-.32765	-19.472	.05802	.55285	-.30030	.53351	-.35500
46	.55517	-.33184	-19.017	.05806	.56463	-.30439	.54571	-.35928
47	.56717	-.33592	-18.575	.05803	.57641	-.30841	.55792	-.36342
48	.57916	-.33990	-18.145	.05795	.58818	-.31236	.57014	-.36743
49	.59115	-.34378	-17.728	.05780	.59995	-.31625	.58235	-.37130
50	.60336	-.34763	-17.299	.05758	.61192	-.32014	.59480	-.37512
51	.61557	-.35138	-16.848	.05723	.62388	-.32397	.60727	-.37880
52	.62779	-.35503	-16.375	.05693	.63581	-.32771	.61976	-.38234
53	.64003	-.35856	-15.880	.05650	.64773	-.33138	.63227	-.38573
54	.65221	-.36197	-15.362	.05600	.65963	-.33497	.64479	-.38897
55	.66442	-.36527	-14.821	.05542	.67151	-.33848	.65733	-.39205
56	.67663	-.36843	-14.256	.05476	.68337	-.34190	.66989	-.39497
57	.68884	-.37147	-13.668	.05403	.69523	-.34522	.68246	-.39772
58	.70105	-.37437	-13.057	.05321	.70706	-.34845	.69504	-.40029
59	.71326	-.37713	-12.421	.05232	.71889	-.35159	.70764	-.40268
60	.72548	-.37975	-11.762	.05133	.73071	-.35462	.72024	-.40488
61	.73769	-.38222	-11.078	.05027	.74252	-.35755	.73286	-.40688
62	.74990	-.38453	-10.370	.04912	.75432	-.36037	.74548	-.40869
63	.76211	-.38668	-9.638	.04788	.76612	-.36308	.75810	-.41029
64	.77432	-.38867	-8.881	.04655	.77791	-.36568	.77073	-.41167
65	.78653	-.39050	-8.099	.04514	.78971	-.36815	.78335	-.41284
66	.79986	-.39229	-7.232	.04348	.80260	-.37072	.79712	-.41386
67	.81319	-.39388	-6.362	.04172	.81550	-.37315	.81088	-.41461
68	.82652	-.39526	-5.492	.03984	.82843	-.37544	.82462	-.41509
69	.83985	-.39644	-4.628	.03784	.84138	-.37758	.83833	-.41530

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85318	-.39742	-3.747	.03573	.85435	-.37959	.85201	-.41525
71	.86651	-.33819	-2.874	.03349	.86735	-.38147	.86567	-.41492
72	.87984	-.39876	-2.001	.03113	.88038	-.38320	.87930	-.41431
73	.89317	-.39912	-1.129	.02864	.89345	-.38480	.89289	-.41344
74	.90653	-.39928	-.258	.02602	.90656	-.38627	.90644	-.41229
75	.91983	-.39924	.612	.02327	.91971	-.38761	.91996	-.41088
76	.93316	-.39900	1.481	.02038	.93293	-.38881	.93342	-.40918
77	.94649	-.39855	2.347	.01735	.94614	-.38989	.94685	-.40722
78	.95982	-.39791	3.210	.01418	.95942	-.39083	.96022	-.40498
79	.97315	-.39706	4.071	.01086	.97277	-.39164	.97354	-.40247
80	.98648	-.39601	4.928	.00739	.98616	-.39233	.98680	-.39969
81	.99981	-.39476	5.782	.00376	.99962	-.39289	1.00000	-.39663

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 5

BETA1	=-41.415	(BLADE INLET ANGLE.)
BETA2	= .664	(BLADE OUTLET ANGLE.)
YZERO	= .00212	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .05250	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00149	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5997	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 3.2991	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0335

STAGGER ANGLE =-23.843

CAMBER ANGLE =-42.379

SECTION AREA = .04352

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .59650
YBAR = -.31169

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03049
IY = .03237
IXY = -.00134

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-23.956

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00303 (AT-23.956 WITH 'X' AXIS)
IPY = .00283 (AT-23.956 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00232	0.00000	-41.415	.00464	.00385	.00174	.00078	-.00174
2	.01453	-.01071	-41.293	.00655	.01666	-.00824	.01234	-.01317
3	.02669	-.02133	-40.979	.00846	.02946	-.01814	.02391	-.02453
4	.03897	-.03187	-40.741	.01036	.04225	-.02795	.03549	-.03580
5	.051 5	-.04232	-40.491	.01224	.05513	-.03767	.04708	-.04698
6	.06324	-.05266	-40.227	.01411	.06779	-.04729	.05868	-.05806
7	.07542	-.06293	-39.949	.01596	.08054	-.05681	.07029	-.06905
8	.08760	-.07308	-39.656	.01779	.09328	-.06624	.08193	-.07993
9	.09979	-.08313	-39.352	.01960	.10607	-.07555	.09357	-.09071
10	.11197	-.09306	-39.031	.02138	.11870	-.08476	.10524	-.10137
11	.12415	-.10288	-38.696	.02314	.13139	-.09385	.11692	-.11191
12	.13634	-.11258	-38.345	.02486	.14405	-.10283	.12863	-.12233
13	.14852	-.12216	-37.979	.02656	.15669	-.11169	.14035	-.13262

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16373	-.13160	-37.596	.02822	.16931	-.12042	.15210	-.14278
15	.17289	-.14392	-37.197	.02985	.18191	-.12933	.16386	-.15281
16	.18517	-.15009	-36.781	.03144	.19446	-.13750	.17566	-.16269
17	.19726	-.15913	-36.348	.03300	.20703	-.14584	.18748	-.17242
18	.20951	-.16815	-35.895	.03453	.21974	-.15416	.19949	-.18214
19	.22197	-.17702	-35.433	.03603	.23242	-.16234	.21153	-.19170
20	.23433	-.18574	-34.961	.03749	.24507	-.17038	.22359	-.20110
21	.24669	-.19430	-34.480	.03889	.25779	-.17827	.23568	-.21033
22	.25905	-.20271	-33.989	.04026	.27030	-.18612	.24780	-.21940
23	.27141	-.21097	-33.486	.04158	.28288	-.19363	.25994	-.22831
24	.28377	-.21907	-32.977	.04285	.29543	-.20109	.27211	-.23704
25	.29613	-.22701	-32.456	.04407	.30795	-.20841	.28430	-.24560
26	.30849	-.23479	-31.924	.04524	.32045	-.21559	.29652	-.25399
27	.32085	-.24241	-31.381	.04637	.33292	-.22261	.30877	-.26220
28	.33320	-.24986	-30.828	.04744	.34536	-.22950	.32105	-.27023
29	.34556	-.25716	-30.264	.04846	.35779	-.23623	.33335	-.27808
30	.35792	-.26429	-29.689	.04943	.37016	-.24282	.34568	-.28576
31	.37028	-.27125	-29.103	.05034	.38252	-.24925	.35804	-.29324
32	.38264	-.27804	-28.505	.05121	.39486	-.25555	.37042	-.30054
33	.39500	-.28467	-27.896	.05202	.40717	-.26169	.38283	-.30766
34	.40693	-.29091	-27.305	.05275	.41903	-.26748	.39484	-.31435
35	.41887	-.29703	-26.722	.05342	.43088	-.27314	.40686	-.32085
36	.43061	-.30293	-26.147	.05405	.44271	-.27867	.41889	-.32719
37	.44274	-.30872	-25.581	.05462	.45453	-.28406	.43095	-.33335
38	.45467	-.31436	-25.023	.05515	.46634	-.28937	.44301	-.33934
39	.46661	-.31986	-24.475	.05561	.47813	-.29455	.45509	-.34517
40	.47854	-.32522	-23.936	.05603	.48991	-.29962	.46718	-.35083
41	.49048	-.33046	-23.408	.05639	.50168	-.30456	.47928	-.35633
42	.50241	-.33556	-22.890	.05670	.51344	-.30944	.49138	-.36167
43	.51435	-.34053	-22.383	.05695	.52519	-.31420	.50350	-.36687
44	.52628	-.34539	-21.887	.05715	.53693	-.31887	.51563	-.37190
45	.53822	-.35012	-21.402	.05729	.54867	-.32345	.52776	-.37680
46	.55015	-.35475	-20.930	.05738	.56043	-.32795	.53990	-.38154
47	.56208	-.35925	-20.473	.05741	.57212	-.33236	.55205	-.38615
48	.57402	-.36366	-20.022	.05738	.58384	-.33670	.56420	-.39061
49	.58595	-.36795	-19.587	.05729	.59556	-.34097	.57635	-.39494
50	.59818	-.37225	-19.142	.05714	.60755	-.34526	.58882	-.39924
51	.61042	-.37644	-18.685	.05692	.61953	-.34948	.60130	-.40340
52	.62265	-.38052	-18.214	.05663	.63150	-.35363	.61380	-.40742
53	.63488	-.38449	-17.731	.05627	.64344	-.35769	.62631	-.41129
54	.64711	-.38835	-17.235	.05584	.65538	-.36168	.63883	-.41502
55	.65934	-.39208	-16.726	.05533	.66730	-.36559	.65138	-.41857
56	.67157	-.39578	-16.204	.05474	.67921	-.36941	.66393	-.42198
57	.68380	-.39919	-15.664	.05408	.69110	-.37315	.67650	-.42522
58	.69633	-.40256	-15.118	.05334	.70298	-.37681	.68907	-.42830
59	.70826	-.40580	-14.556	.05251	.71486	-.38036	.70166	-.43121
60	.72049	-.40891	-13.988	.05160	.72672	-.38387	.71426	-.43394
61	.73272	-.41188	-13.391	.05060	.73858	-.38727	.72686	-.43650
62	.74495	-.41473	-12.787	.04951	.75043	-.39059	.73947	-.43887
63	.75718	-.41744	-12.170	.04833	.76228	-.39381	.75209	-.44106
64	.76941	-.42000	-11.539	.04707	.77412	-.39695	.76471	-.44306
65	.78164	-.42243	-10.895	.04573	.78596	-.39999	.77732	-.44487
66	.79529	-.42497	-10.168	.04407	.79918	-.40328	.79140	-.44665
67	.80894	-.42732	-9.448	.04231	.81241	-.40645	.80547	-.44819
68	.82258	-.42958	-8.712	.04043	.82564	-.40952	.81971	-.44949
69	.83623	-.43151	-7.984	.03847	.83890	-.41246	.83256	-.45053

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.84987	-.43333	-7.256	.03628	.85217	-.41534	.84758	-.45133
71	.86352	-.43498	-6.529	.03401	.86545	-.41809	.86159	-.45188
72	.87717	-.43646	-5.802	.03160	.87876	-.42074	.87557	-.45218
73	.89081	-.43775	-5.076	.02905	.89210	-.42328	.88953	-.45222
74	.90446	-.43888	-4.352	.02636	.90546	-.42574	.90346	-.45202
75	.91810	-.43983	-3.629	.02353	.91885	-.42809	.91736	-.45157
76	.93175	-.44061	-2.908	.02054	.93227	-.43035	.93123	-.45087
77	.94543	-.44122	-2.189	.01740	.94573	-.43252	.94506	-.44991
78	.95914	-.44165	-1.472	.01411	.95922	-.43460	.95886	-.44871
79	.97269	-.44192	-.757	.01066	.97276	-.43659	.97262	-.44725
80	.98634	-.44202	-.045	.00704	.98634	-.43850	.98633	-.44554
81	.99998	-.44194	.664	.00326	.99996	-.44031	1.00000	-.44357

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 6
****

BETA1	=-42.689	(BLADE INLET ANGLE.)
BETA2	= -4.217	(BLADE OUTLET ANGLE.)
YZERO	= .00195	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .05000	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
TONE	= .00147	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .6320	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 1.2696	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.1173

STAGGER ANGLE =-26.483

CAMBER ANGLE =-38.472

SECTION AREA = .04363

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .53374
YBAR = -.33714

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03367
IY = .00234
IXY = -.00115

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-26.482

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .03313 (AT-26.482 WITH 'X' AXIS)
IPY = .00291 (AT-26.482 WITH 'Y' AXIS)

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00219	[illegible]	-42.689	.00436	.00366	.00156	.00070	-.00169
2	.01436	-.01121	-42.527	.00622	.01647	-.00892	.01226	-.01350
3	.02655	-.02235	-42.351	.00808	.02927	-.01937	.02383	-.02534
4	.03874	-.03342	-42.161	.00993	.04207	-.02974	.03540	-.03710
5	.05092	-.04442	-41.956	.01177	.05485	-.04004	.04699	-.04879
6	.06311	-.05533	-41.737	.01359	.06763	-.05026	.05858	-.06040
7	.07529	-.06616	-41.502	.01540	.08039	-.06039	.07019	-.07192
8	.08748	-.07689	-41.252	.01718	.09314	-.07043	.08181	-.08335
9	.09966	-.08753	-40.987	.01895	.10588	-.08038	.09345	-.09468
10	.11185	-.09807	-40.735	.02069	.11860	-.09023	.10510	-.10591
11	.12403	-.10850	-40.497	.02240	.13130	-.09997	.11677	-.11703
12	.13622	-.11881	-40.392	.02409	.14398	-.10960	.12846	-.12803
13	.14841	-.12901	-39.763	.02575	.15664	-.11911	.14017	-.13891

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16159	-.13909	-39.411	.02738	.16928	-.12851	.15193	-.14966
15	.17276	-.14904	-39.143	.02897	.18190	-.13779	.16365	-.16329
16	.18496	-.15465	-38.657	.03053	.19457	-.14693	.17540	-.17077
17	.19715	-.16453	-38.251	.03205	.20707	-.15595	.18723	-.18111
18	.20957	-.17825	-37.823	.03356	.21906	-.16300	.19929	-.19150
19	.22203	-.18752	-37.386	.03503	.23264	-.17391	.21137	-.20174
20	.23443	-.19724	-36.939	.03646	.24538	-.18267	.22347	-.21181
21	.24685	-.20651	-36.481	.03784	.25813	-.19130	.23561	-.22172
22	.25928	-.21562	-36.014	.03918	.27080	-.19977	.24776	-.23147
23	.27171	-.22457	-35.537	.04047	.28347	-.20811	.25995	-.24184
24	.28413	-.23337	-35.049	.04172	.29611	-.21629	.27216	-.25045
25	.29656	-.24201	-34.553	.04292	.30873	-.22433	.28439	-.25968
26	.30899	-.25044	-34.049	.04407	.32132	-.23223	.29665	-.26874
27	.32141	-.25880	-33.519	.04517	.33388	-.23997	.30894	-.27762
28	.33384	-.26695	-32.987	.04622	.34642	-.24756	.32126	-.28633
29	.34627	-.27493	-32.443	.04721	.35893	-.25501	.33360	-.29485
30	.35869	-.28274	-31.887	.04816	.37141	-.26230	.34597	-.30319
31	.37112	-.29039	-31.323	.04905	.38387	-.26944	.35837	-.31134
32	.38355	-.29787	-30.743	.04990	.39630	-.27642	.37080	-.31931
33	.39597	-.30517	-30.148	.05068	.40870	-.28326	.38325	-.32708
34	.40795	-.31205	-29.575	.05139	.42063	-.28970	.39527	-.33439
35	.41993	-.31877	-29.008	.05205	.43255	-.29631	.40731	-.34153
36	.43131	-.32533	-28.449	.05265	.44445	-.30218	.41937	-.34848
37	.44359	-.33175	-27.898	.05321	.45634	-.30823	.43144	-.35526
38	.45587	-.33802	-27.355	.05371	.46821	-.31416	.44353	-.36187
39	.46704	-.34416	-26.821	.05417	.48006	-.31997	.45562	-.36831
40	.47952	-.35013	-26.296	.05457	.49191	-.32567	.46774	-.37459
41	.49183	-.35598	-25.781	.05491	.50374	-.33126	.47986	-.38071
42	.50378	-.36170	-25.276	.05521	.51557	-.33674	.49199	-.38666
43	.51576	-.36720	-24.781	.05545	.52738	-.34213	.50414	-.39247
44	.52774	-.37276	-24.297	.05563	.53918	-.34741	.51629	-.39812
45	.53972	-.37811	-23.824	.05577	.55098	-.35261	.52845	-.40362
46	.55169	-.38334	-23.363	.05584	.56277	-.35771	.54062	-.40898
47	.56367	-.38846	-22.913	.05587	.57455	-.36273	.55280	-.41419
48	.57565	-.39347	-22.476	.05583	.58632	-.36768	.56498	-.41927
49	.58763	-.39837	-22.051	.05574	.59809	-.37254	.57717	-.42421
50	.59999	-.40333	-21.614	.05558	.61023	-.37749	.58976	-.42917
51	.61236	-.40817	-21.170	.05536	.62235	-.38236	.60236	-.43398
52	.62472	-.41290	-20.717	.05507	.63446	-.38715	.61498	-.43866
53	.63709	-.41752	-20.256	.05473	.64656	-.39186	.62762	-.44318
54	.64945	-.42203	-19.786	.05427	.65863	-.39650	.64025	-.44756
55	.66181	-.42642	-19.308	.05376	.67073	-.40105	.65293	-.45179
56	.67418	-.43069	-18.821	.05317	.68275	-.40553	.66560	-.45586
57	.68654	-.43485	-18.326	.05253	.69480	-.40993	.67829	-.45977
58	.69891	-.43888	-17.822	.05175	.70683	-.41425	.69099	-.46352
59	.71127	-.44280	-17.309	.05092	.71885	-.41849	.70369	-.46711
60	.72363	-.44659	-16.787	.05001	.73086	-.42265	.71641	-.47053
61	.73600	-.45026	-16.257	.04900	.74286	-.42673	.72914	-.47378
62	.74836	-.45380	-15.718	.04791	.75485	-.43074	.74187	-.47686
63	.76073	-.45721	-15.170	.04673	.76684	-.43466	.75461	-.47977
64	.77309	-.46050	-14.613	.04545	.77882	-.43851	.76736	-.48250
65	.78545	-.46366	-14.047	.04409	.79080	-.44228	.78010	-.48504
66	.79886	-.46670	-13.428	.04249	.80373	-.44627	.79392	-.48760
67	.81226	-.47006	-12.810	.04078	.81673	-.45018	.80774	-.48994
68	.82566	-.47303	-12.191	.03896	.82977	-.45399	.82155	-.49207
69	.83906	-.47585	-11.572	.03701	.84277	-.45772	.83535	-.49398

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85246	-.47852	-10.954	.03494	.85578	-.46137	.84914	-.49567
71	.86586	-.48134	-10.336	.03274	.86880	-.46494	.86293	-.49714
72	.87927	-.48341	-9.719	.03041	.88183	-.46842	.87670	-.49840
73	.89267	-.48563	-9.102	.02796	.89488	-.47183	.89046	-.49943
74	.90607	-.48770	-8.487	.02537	.90794	-.47516	.90420	-.50025
75	.91947	-.48963	-7.872	.02265	.92102	-.47841	.91792	-.50085
76	.93287	-.49141	-7.259	.01978	.93412	-.48150	.93162	-.50122
77	.94627	-.49304	-6.647	.01678	.94724	-.48471	.94530	-.50138
78	.95967	-.49453	-6.037	.01363	.96039	-.48776	.95896	-.50131
79	.97308	-.49588	-5.428	.01033	.97356	-.49074	.97259	-.50102
80	.98648	-.49708	-4.822	.00688	.98677	-.49365	.98619	-.50051
81	.99988	-.49814	-4.217	.00328	1.00000	-.49650	.99976	-.49978

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 7

```
BETA1      =-43.955     (BLADE INLET ANGLE.)
BETA2      = -9.169     (BLADE OUTLET ANGLE.)
YZERO      =  .00177    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .04750    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .00146    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .6261     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 1.2270     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO A BLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

```
BLADE CHORD    = 1.1470

STAGGER ANGLE  =-29.331

CAMBER ANGLE   =-34.789

SECTION AREA   = .04303

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

        XBAR =  .53410
        YBAR = -.36614

SECOND MOMENTS OF AREA ABOUT CENTROID

        IX   =  .00375
        IY   =  .03233
        IXY  = -.00129

ANGLE OF INCLINATION OF (OMEI) PRINCIPAL AXIS TO 'X' AXIS =-29.331

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

        IPX  = .00373      (AT-29.331 WITH 'X' AXIS)
        IPY  = .00315      (AT-29.331 WITH 'Y' AXIS)
```

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XF	YP
1	.00203	0.01000	-43.858	.00406	.00344	.00146	.00062	-.00146
2	.01435	-.01182	-43.774	.00589	.01639	-.00969	.01231	-.01395
3	.02667	-.02360	-43.671	.00771	.02933	-.02081	.02400	-.02639
4	.03899	-.03534	-43.549	.00953	.04227	-.03188	.03570	-.03879
5	.05131	-.04702	-43.408	.01133	.05523	-.04290	.04741	-.05114
6	.06362	-.05864	-43.247	.01313	.06812	-.05386	.05913	-.06342
7	.07594	-.07019	-43.066	.01491	.08103	-.06475	.07085	-.07563
8	.08826	-.08166	-42.866	.01666	.09393	-.07556	.08259	-.08777
9	.10058	-.09305	-42.645	.01841	.10681	-.08629	.09434	-.09982
10	.11290	-.10435	-42.402	.02012	.11968	-.09692	.10611	-.11178
11	.12522	-.11555	-42.139	.02181	.13253	-.10746	.11790	-.12364
12	.13753	-.12664	-41.853	.02347	.14536	-.11790	.12970	-.13538
13	.14985	-.13762	-41.546	.02511	.15818	-.12822	.14153	-.14701

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16217	-.14847	-41.215	.02671	.17397	-.13842	.15337	-.15852
15	.17449	-.15919	-40.863	.02829	.18374	-.14850	.16524	-.16989
16	.18681	-.16978	-40.461	.02981	.19649	-.15844	.17713	-.18112
17	.19913	-.18022	-40.077	.03131	.20921	-.16824	.18905	-.19220
18	.21163	-.19066	-39.651	.03279	.22210	-.17804	.20117	-.20329
19	.22414	-.20095	-39.219	.03423	.23496	-.18769	.21332	-.21421
20	.23665	-.21108	-38.781	.03563	.24781	-.19719	.22549	-.22497
21	.24916	-.22105	-38.337	.03698	.26063	-.20655	.23769	-.23555
22	.26167	-.23086	-37.888	.03829	.27342	-.21575	.24991	-.24597
23	.27417	-.24052	-37.432	.03955	.28620	-.22481	.26215	-.25622
24	.28668	-.25001	-36.971	.04077	.29894	-.23372	.27442	-.26630
25	.29919	-.25935	-36.502	.04194	.31166	-.24249	.28672	-.27620
26	.31170	-.26852	-36.028	.04306	.32436	-.25111	.29903	-.28594
27	.32421	-.27754	-35.548	.04414	.33704	-.25959	.31138	-.29550
28	.33671	-.28640	-35.062	.04515	.34968	-.26792	.32374	-.30488
29	.34922	-.29510	-34.569	.04613	.36231	-.27610	.33613	-.31409
30	.36173	-.30364	-34.069	.04705	.37491	-.28415	.34855	-.32313
31	.37424	-.31202	-33.564	.04793	.38749	-.29205	.36099	-.33198
32	.38675	-.32023	-33.051	.04874	.40004	-.29981	.37345	-.34066
33	.39925	-.32829	-32.533	.04951	.41257	-.30742	.38594	-.34916
34	.41131	-.33591	-32.031	.05023	.42462	-.31463	.39800	-.35719
35	.42336	-.34338	-31.533	.05084	.43666	-.32171	.41007	-.36504
36	.43542	-.35070	-31.039	.05142	.44867	-.32867	.42216	-.37273
37	.44747	-.35789	-30.549	.05196	.46068	-.33551	.43427	-.38026
38	.45953	-.36493	-30.063	.05245	.47266	-.34224	.44639	-.38763
39	.47155	-.37184	-29.582	.05288	.48463	-.34885	.45853	-.39484
40	.48363	-.37862	-29.106	.05327	.49659	-.35535	.47068	-.40189
41	.49569	-.38526	-28.635	.05363	.50853	-.36174	.48285	-.40879
42	.50774	-.39178	-28.169	.05388	.52046	-.36803	.49503	-.41553
43	.51980	-.39818	-27.709	.05411	.53238	-.37422	.50722	-.42213
44	.53185	-.40445	-27.255	.05428	.54428	-.38032	.51942	-.42857
45	.54391	-.41060	-26.808	.05443	.55617	-.38632	.53164	-.43487
46	.55596	-.41663	-26.366	.05447	.56805	-.39223	.54387	-.44103
47	.56801	-.42255	-25.932	.05448	.57991	-.39805	.55610	-.44704
48	.58007	-.42835	-25.504	.05444	.59179	-.40379	.56835	-.45292
49	.59212	-.43405	-25.083	.05434	.60364	-.40944	.58061	-.45865
50	.60465	-.43965	-24.640	.05417	.61594	-.41524	.59335	-.46447
51	.61718	-.44554	-24.237	.05393	.62823	-.42095	.60612	-.47014
52	.62970	-.45112	-23.761	.05363	.64051	-.42658	.61890	-.47566
53	.64223	-.45657	-23.311	.05325	.65277	-.43212	.63169	-.48103
54	.65476	-.46191	-22.855	.05280	.66501	-.43758	.64450	-.48624
55	.66728	-.46713	-22.394	.05228	.67724	-.44297	.65733	-.49130
56	.67981	-.47224	-21.928	.05167	.68946	-.44827	.67016	-.49620
57	.69234	-.47722	-21.458	.05099	.70166	-.45349	.68301	-.50095
58	.70486	-.48208	-20.982	.05022	.71386	-.45864	.69587	-.50553
59	.71739	-.48683	-20.501	.04937	.72604	-.46371	.70875	-.50995
60	.72992	-.49145	-20.015	.04843	.73821	-.46870	.72163	-.51420
61	.74244	-.49595	-19.524	.04740	.75037	-.47362	.73452	-.51829
62	.75497	-.50033	-19.028	.04628	.76252	-.47846	.74743	-.52221
63	.76750	-.50459	-18.527	.04507	.77466	-.48323	.76034	-.52596
64	.78003	-.50873	-18.020	.04376	.78679	-.48792	.77326	-.52954
65	.79255	-.51274	-17.509	.04236	.79892	-.49254	.78618	-.53294
66	.80550	-.51676	-16.979	.04081	.81146	-.49725	.79954	-.53628
67	.81845	-.52065	-16.447	.03914	.82399	-.50188	.81291	-.53942
68	.83143	-.52441	-15.916	.03737	.83652	-.50644	.82627	-.54238
69	.84435	-.52804	-15.385	.03549	.84906	-.51093	.83964	-.54514

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85733	-.53153	-14.854	.03349	.86159	-.51535	.85300	-.54772
71	.87025	-.53490	-14.324	.03137	.87413	-.51971	.86636	-.55010
72	.88319	-.53815	-13.795	.02914	.88667	-.52430	.87972	-.55230
73	.89614	-.54126	-13.265	.02679	.89922	-.52823	.89307	-.55430
74	.90909	-.54425	-12.737	.02431	.91177	-.53240	.90641	-.55611
75	.92204	-.54712	-12.210	.02171	.92434	-.53651	.91975	-.55773
76	.93499	-.54986	-11.683	.01898	.93691	-.54056	.93307	-.55915
77	.94794	-.55247	-11.158	.01612	.94950	-.54456	.94638	-.56038
78	.96089	-.55497	-10.634	.01313	.96210	-.54851	.95968	-.56142
79	.97384	-.55734	-10.111	.01001	.97472	-.55241	.97296	-.56226
80	.98679	-.55958	-9.589	.00675	.98735	-.55626	.98622	-.56291
81	.99974	-.56171	-9.069	.00335	1.00000	-.56006	.99947	-.56337

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 8

```
BETA1        =-44.937     (BLADE INLET ANGLE.)
BETA2        =-13.878     (BLADE OUTLET ANGLE.)
YZERO        =  .01156    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T            =  .04494    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE         =  .00145    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z            =  .6124     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD         = 3.1737     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO A BLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

```
BLADE CHORD     = 1.1820

STAGGER ANGLE   =-32.235

CAMBER ANGLE    =-31.061

SECTION AREA    = .03313

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

          XBAR =  .53636
          YBAR = -.39833

SECOND MOMENTS OF AREA ABOUT CENTROID

          IX   =  .00194
          IY   =  .00232
          IXY  = -.00145

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-32.233

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

          IPX  = .00012      (AT-32.233 WITH 'X' AXIS)
          IPY  = .00324      (AT-32.233 WITH 'Y' AXIS)
```

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00187	0.00000	-44.937	.00373	.00316	.00132	.00055	-.00132
2	.01439	-.01249	-44.926	.00552	.01633	-.01053	.01243	-.01444
3	.02691	-.02496	-44.992	.00733	.02947	-.02238	.02432	-.02755
4	.03941	-.03742	-44.834	.00908	.04261	-.03420	.03621	-.04064
5	.05193	-.04985	-44.755	.01085	.05575	-.04630	.04811	-.05370
6	.06445	-.06224	-44.651	.01261	.06888	-.05775	.06002	-.06672
7	.07696	-.07458	-44.525	.01435	.08199	-.06946	.07193	-.07969
8	.08948	-.08686	-44.375	.01638	.09510	-.08111	.08386	-.09260
9	.10233	-.09907	-44.201	.01779	.10823	-.09269	.09579	-.10544
10	.11451	-.11120	-44.003	.01948	.12128	-.10419	.10774	-.11820
11	.12703	-.12324	-43.779	.02114	.13434	-.11560	.11971	-.13087
12	.13954	-.13518	-43.531	.02278	.14739	-.12692	.13170	-.14344
13	.15206	-.14701	-43.256	.02439	.16042	-.13813	.14370	-.15591

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16458	-.15873	-42.955	.02597	.17342	-.14923	.15573	-.16823
15	.17709	-.17032	-42.626	.02752	.18641	-.16020	.16776	-.18044
16	.18961	-.18177	-42.269	.02903	.19937	-.17133	.17985	-.19251
17	.20213	-.19307	-41.882	.03050	.21231	-.18171	.19194	-.20442
18	.21470	-.20426	-41.478	.03194	.22528	-.19230	.20412	-.21623
19	.22728	-.21533	-41.071	.03334	.23823	-.20273	.21632	-.22787
20	.23985	-.22616	-40.659	.03470	.25116	-.21302	.22855	-.23934
21	.25243	-.23693	-40.244	.03602	.26406	-.22316	.24079	-.25065
22	.26500	-.24747	-39.825	.03730	.27695	-.23315	.25306	-.26179
23	.27758	-.25788	-39.404	.03853	.28981	-.24299	.26535	-.27276
24	.29015	-.26813	-38.987	.03971	.30264	-.25270	.27766	-.28357
25	.30273	-.27823	-38.552	.04085	.31546	-.26226	.29000	-.29420
26	.31530	-.28817	-38.121	.04195	.32825	-.27167	.30236	-.30467
27	.32788	-.29797	-37.687	.04299	.34102	-.28095	.31474	-.31498
28	.34045	-.30760	-37.249	.04399	.35377	-.29010	.32714	-.32511
29	.35303	-.31709	-36.809	.04494	.36649	-.29910	.33957	-.33508
30	.36561	-.32643	-36.365	.04584	.37920	-.30797	.35202	-.34488
31	.37818	-.33561	-35.919	.04669	.39188	-.31670	.36449	-.35452
32	.39076	-.34464	-35.469	.04749	.40453	-.32531	.37698	-.36398
33	.40333	-.35353	-35.016	.04824	.41717	-.33378	.38949	-.37328
34	.41548	-.36197	-34.579	.04891	.42936	-.34184	.40163	-.38211
35	.42763	-.37028	-34.143	.04954	.44153	-.34978	.41373	-.39078
36	.43978	-.37845	-33.719	.05012	.45369	-.35761	.42587	-.39930
37	.45193	-.38649	-33.279	.05064	.46583	-.36532	.43804	-.40766
38	.46418	-.39440	-32.852	.05112	.47795	-.37293	.45021	-.41588
39	.47623	-.40218	-32.427	.05155	.49005	-.38043	.46241	-.42394
40	.48838	-.40984	-32.026	.05193	.50214	-.38782	.47462	-.43186
41	.50053	-.41737	-31.588	.05225	.51422	-.39512	.48684	-.43963
42	.51268	-.42478	-31.174	.05253	.52628	-.40231	.49908	-.44726
43	.52483	-.43208	-30.764	.05275	.53832	-.40941	.51134	-.45474
44	.53698	-.43925	-30.358	.05292	.55035	-.41642	.52361	-.46208
45	.54913	-.44631	-29.956	.05304	.56237	-.42333	.53589	-.46929
46	.56128	-.45325	-29.558	.05311	.57438	-.43016	.54818	-.47635
47	.57343	-.46009	-29.165	.05312	.58637	-.43690	.56048	-.48328
48	.58559	-.46682	-28.776	.05306	.59835	-.44355	.57280	-.49008
49	.59773	-.47344	-28.393	.05298	.61033	-.45013	.58513	-.49674
50	.61043	-.47996	-27.992	.05282	.62282	-.45692	.59803	-.50356
51	.62312	-.48693	-27.594	.05259	.63530	-.46363	.61095	-.51024
52	.63582	-.49351	-27.170	.05228	.64776	-.47025	.62388	-.51676
53	.64852	-.49997	-26.749	.05190	.66020	-.47679	.63684	-.52314
54	.66121	-.50631	-26.321	.05145	.67262	-.48325	.64981	-.52937
55	.67391	-.51253	-25.887	.05092	.68503	-.48962	.66280	-.53543
56	.68661	-.51863	-25.445	.05031	.69742	-.49592	.67580	-.54134
57	.69930	-.52461	-24.997	.04961	.70979	-.50213	.68882	-.54709
58	.71200	-.53047	-24.542	.04883	.72214	-.50826	.70186	-.55268
59	.72470	-.53621	-24.080	.04786	.73448	-.51431	.71491	-.55810
60	.73740	-.54182	-23.611	.04703	.74681	-.52028	.72798	-.56335
61	.75009	-.54731	-23.135	.04595	.75912	-.52618	.74107	-.56843
62	.76279	-.55267	-22.651	.04481	.77142	-.53199	.75416	-.57334
63	.77549	-.55790	-22.161	.04356	.78370	-.53773	.76727	-.57808
64	.78818	-.56301	-21.663	.04222	.79598	-.54339	.78039	-.58263
65	.80088	-.56799	-21.157	.04078	.80824	-.54897	.79352	-.58700
66	.81357	-.57273	-20.662	.03927	.82023	-.55436	.80637	-.59111
67	.82572	-.57736	-20.171	.03766	.83221	-.55968	.81923	-.59503
68	.83914	-.58186	-19.685	.03594	.84419	-.56494	.83209	-.59878
69	.85056	-.58624	-19.234	.03413	.85617	-.57013	.84495	-.60236

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.86298	-.59051	-18.727	.03220	.86815	-.57526	.85781	-.60576
71	.87540	-.59466	-18.257	.03017	.88012	-.58034	.87067	-.60899
72	.88782	-.59871	-17.791	.02802	.89210	-.58536	.88353	-.61205
73	.90023	-.60264	-17.332	.02577	.90407	-.59034	.89640	-.61493
74	.91265	-.60646	-16.878	.02340	.91605	-.59526	.90926	-.61765
75	.92507	-.61017	-16.430	.02091	.92803	-.60014	.92212	-.62020
76	.93749	-.61378	-15.989	.01831	.94001	-.60498	.93497	-.62258
77	.94991	-.61729	-15.553	.01558	.95200	-.60979	.94782	-.62479
78	.96233	-.62070	-15.125	.01273	.96399	-.61455	.96067	-.62684
79	.97475	-.62400	-14.702	.00976	.97599	-.61928	.97351	-.62872
80	.98717	-.62721	-14.287	.00666	.98799	-.62399	.98635	-.63044
81	.99959	-.63033	-13.878	.00343	1.00000	-.62866	.99918	-.63200

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 9
****

BETA1	=-45.943	(BLADE INLET ANGLE.)
BETA2	=-18.590	(BLADE OUTLET ANGLE.)
YZERO	= .00143	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .04230	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00143	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .6230	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 3.1130	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.2236

STAGGER ANGLE =-35.810

CAMBER ANGLE =-27.353

SECTION AREA = .04314

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .53907
YBAR = -.03148

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00116
IY = .00232
IXY = -.00161

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-35.092

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00002 (AT-35.192 WITH 'X' AXIS)
IPY = .00345 (AT-35.092 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00175	0.00000	-45.943	.00349	.00303	.00121	.00049	-.00121
2	.01444	-.01312	-45.933	.00522	.01632	-.01131	.01257	-.01494
3	.02714	-.02624	-45.906	.00694	.02964	-.02382	.02465	-.02865
4	.03984	-.03933	-45.861	.00866	.04295	-.03632	.03674	-.04235
5	.05254	-.05241	-45.799	.01037	.05626	-.04879	.04883	-.05602
6	.06524	-.06545	-45.719	.01207	.06956	-.06124	.06092	-.06966
7	.07794	-.07845	-45.621	.01375	.08285	-.07364	.07302	-.08326
8	.09064	-.09140	-45.505	.01543	.09614	-.08599	.08514	-.09681
9	.10334	-.10429	-45.372	.01708	.10942	-.09829	.09726	-.11030
10	.11604	-.11713	-45.219	.01872	.12268	-.11053	.10939	-.12372
11	.12874	-.12989	-45.048	.02033	.13593	-.12270	.12154	-.13707
12	.14143	-.14256	-44.858	.02192	.14917	-.13479	.13370	-.15033
13	.15413	-.15516	-44.649	.02349	.16239	-.14680	.14588	-.16351

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16643	-.16765	-44.427	.02592	.17559	-.15871	.15808	-.17659
15	.17953	-.17994	-44.173	.02653	.18877	-.17053	.17029	-.18955
16	.19223	-.19232	-43.907	.02809	.20194	-.18227	.18252	-.20241
17	.20493	-.20448	-43.638	.02944	.21508	-.1938[illegible]	.19478	-.21514
18	.21753	-.21641	-43.384	.03083	.22810	-.20520	.20695	-.22763
19	.23012	-.22822	-42.991	.03219	.24109	-.21645	.21915	-.23999
20	.24272	-.23990	-42.665	.03357	.25407	-.22758	.23136	-.25222
21	.25531	-.25144	-42.336	.03478	.26703	-.23859	.24360	-.26430
22	.26791	-.26285	-41.995	.03692	.27996	-.24946	.25586	-.27624
23	.28051	-.27412	-41.643	.03722	.29287	-.26021	.26814	-.28803
24	.29311	-.28525	-41.281	.03837	.30576	-.27083	.28044	-.29967
25	.30573	-.29624	-40.909	.03948	.31863	-.28132	.29277	-.31116
26	.31829	-.30708	-40.527	.04055	.33147	-.29167	.30512	-.32249
27	.33089	-.31777	-40.133	.04157	.34429	-.30188	.31749	-.33366
28	.34349	-.32832	-39.725	.04255	.35708	-.31196	.32989	-.34468
29	.35608	-.33871	-39.312	.04347	.36985	-.32189	.34231	-.35552
30	.36868	-.34894	-38.884	.04435	.38260	-.33168	.35476	-.36621
31	.38127	-.35902	-38.444	.04519	.39532	-.34133	.36723	-.37672
32	.39387	-.36894	-37.992	.04597	.40802	-.35083	.37972	-.38706
33	.40647	-.37870	-37.527	.04670	.42069	-.36018	.39224	-.39722
34	.41869	-.38801	-37.374	.04737	.43297	-.36912	.40442	-.40691
35	.43092	-.39716	-36.631	.04799	.44524	-.37792	.41661	-.41643
36	.44315	-.40620	-36.193	.04856	.45749	-.38661	.42881	-.42579
37	.45538	-.41528	-35.775	.04908	.46973	-.39517	.44103	-.43499
38	.46761	-.42382	-35.364	.04956	.48195	-.40362	.45327	-.44403
39	.47984	-.43244	-34.964	.04999	.49416	-.41196	.46552	-.45292
40	.49217	-.44093	-34.576	.05036	.50636	-.42019	.47778	-.46166
41	.50433	-.44930	-34.200	.05069	.51855	-.42833	.49005	-.47026
42	.51653	-.45755	-33.834	.05095	.53072	-.43638	.50233	-.47872
43	.52876	-.46570	-33.488	.05121	.54288	-.44434	.51463	-.48705
44	.54098	-.47374	-33.153	.05139	.55504	-.45222	.52693	-.49525
45	.55321	-.48167	-32.831	.05152	.56718	-.46003	.53925	-.50332
46	.56544	-.48952	-32.524	.05160	.57931	-.46776	.55157	-.51127
47	.57767	-.49727	-32.231	.05163	.59144	-.47543	.56390	-.51911
48	.58990	-.50494	-31.953	.05161	.60356	-.48305	.57624	-.52683
49	.60213	-.51253	-31.691	.05153	.61566	-.49060	.58859	-.53445
50	.61496	-.52041	-31.415	.05139	.62835	-.49848	.60157	-.54234
51	.62779	-.52820	-31.123	.05118	.64102	-.50630	.61457	-.55011
52	.64063	-.53590	-30.808	.05089	.65366	-.51405	.62759	-.55776
53	.65346	-.54350	-30.476	.05054	.66628	-.52173	.64064	-.56528
54	.66629	-.55100	-30.125	.05011	.67887	-.52933	.65372	-.57267
55	.67913	-.55840	-29.755	.04959	.69143	-.53687	.66682	-.57992
56	.69196	-.56567	-29.365	.04900	.70397	-.54432	.67995	-.58703
57	.70479	-.57284	-28.955	.04831	.71649	-.55170	.69310	-.59397
58	.71762	-.57987	-28.524	.04754	.72898	-.55899	.70627	-.60076
59	.73046	-.58678	-28.072	.04668	.74144	-.56619	.71947	-.60738
60	.74329	-.59356	-27.598	.04572	.75388	-.57330	.73270	-.61382
61	.75612	-.60020	-27.102	.04467	.76630	-.58032	.74595	-.62008
62	.76896	-.60669	-26.584	.04351	.77869	-.58724	.75922	-.62615
63	.78179	-.61304	-26.043	.04226	.79107	-.59405	.77251	-.63202
64	.79462	-.61923	-25.479	.04090	.80342	-.60077	.78582	-.63770
65	.80745	-.62527	-24.890	.03944	.81575	-.60738	.79915	-.64316
66	.81945	-.63076	-24.335	.03798	.82728	-.61346	.81163	-.64807
67	.83145	-.63612	-23.884	.03642	.83880	-.61946	.82410	-.65279
68	.84345	-.64125	-23.293	.03477	.85033	-.62539	.83658	-.65732
69	.85545	-.64646	-22.796	.03301	.86185	-.63124	.84906	-.66167

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.86745	-.65144	-22.322	.03116	.87337	-.63733	.86153	-.66585
71	.87945	-.65631	-21.869	.02923	.88489	-.64276	.87401	-.66986
72	.89145	-.66108	-21.438	.02714	.89641	-.64844	.88649	-.67371
73	.90345	-.66574	-21.028	.02497	.90793	-.65408	.89897	-.67739
74	.91545	-.67033	-20.641	.02269	.91945	-.65969	.91145	-.68092
75	.92745	-.67478	-20.277	.02030	.93097	-.66526	.92393	-.68430
76	.93945	-.67917	-19.936	.01783	.94248	-.67081	.93641	-.68754
77	.95145	-.68349	-19.619	.01518	.95399	-.67634	.94890	-.69063
78	.96345	-.68773	-19.325	.01244	.96551	-.68186	.96139	-.69363
79	.97544	-.69190	-19.056	.00958	.97701	-.68738	.97388	-.69643
80	.98744	-.69602	-18.811	.00663	.98851	-.69290	.98638	-.69914
81	.99944	-.70008	-18.593	.00349	1.00000	-.69843	.99889	-.70174

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 10
****

BETA1	=-46.889	(BLADE INLET ANGLE.)
BETA2	=-23.137	(BLADE OUTLET ANGLE.)
YZERO	= .00136	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .03967	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00141	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .6275	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 3.0519	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.2618

STAGGER ANGLE =-37.637

CAMBER ANGLE =-23.782

SECTION AREA = .04323

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .51215
YBAR = -.46538

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03140
IY = .00232
IXY = -.03178

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-37.760

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00992 (AT-37.760 WITH 'X' AXIS)
IPY = .03373 (AT-37.760 WITH 'Y' AXIS)

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00171	-.00203	-46.889	.00342	.00296	.00117	.00046	-.00117
2	.01453	-.01366	-46.883	.00506	.01634	-.01193	.01265	-.01539
3	.02729	-.02731	-46.865	.00673	.02973	-.02502	.02484	-.02960
4	.04007	-.04095	-46.835	.00833	.04311	-.03810	.03703	-.04380
5	.05286	-.05458	-46.794	.00996	.05649	-.05117	.04923	-.05799
6	.06565	-.06818	-46.741	.01158	.06986	-.06421	.06143	-.07215
7	.07844	-.08175	-46.675	.01319	.08323	-.07723	.07364	-.08628
8	.09122	-.09530	-46.598	.01478	.09659	-.09022	.08585	-.10037
9	.10401	-.10880	-46.508	.01636	.10995	-.10316	.09807	-.11443
10	.11683	-.12225	-46.406	.01793	.12329	-.11607	.11031	-.12843
11	.12957	-.13566	-46.292	.01947	.13662	-.12893	.12255	-.14238
12	.14237	-.14900	-46.166	.02103	.14995	-.14177	.13480	-.15627
13	.15516	-.16229	-46.025	.02253	.16325	-.15448	.14707	-.17010

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16795	-.17551	-45.872	.02397	.17655	-.16716	.15934	-.18385
15	.18074	-.18865	-45.726	.02542	.18983	-.17978	.17164	-.19753
16	.19352	-.21172	-45.526	.02684	.20313	-.19232	.18395	-.21112
17	.20631	-.21470	-45.333	.02823	.21635	-.20478	.19627	-.22462
18	.21885	-.22734	-45.133	.02956	.22932	-.21691	.20837	-.23777
19	.23139	-.23989	-44.911	.03086	.24228	-.22896	.22049	-.25082
20	.24392	-.25234	-44.676	.03213	.25522	-.24091	.23263	-.26376
21	.25646	-.26468	-44.425	.03336	.26814	-.25277	.24479	-.27659
22	.26900	-.27691	-44.157	.03455	.28103	-.26452	.25696	-.28931
23	.28154	-.28903	-43.873	.03571	.29391	-.27615	.26916	-.30190
24	.29407	-.31102	-43.571	.03683	.30677	-.28768	.28138	-.31436
25	.30661	-.31288	-43.252	.03791	.31963	-.29907	.29363	-.32668
26	.31915	-.32461	-42.914	.03894	.33241	-.31035	.30589	-.33886
27	.33169	-.33619	-42.557	.03994	.34519	-.32148	.31818	-.35090
28	.34423	-.34763	-42.181	.04089	.35795	-.33248	.33053	-.36278
29	.35676	-.35891	-41.785	.04179	.37069	-.34333	.34284	-.37449
30	.36930	-.37003	-41.368	.04265	.38339	-.35403	.35521	-.38604
31	.38184	-.38099	-40.931	.04347	.39608	-.36457	.36760	-.39741
32	.39438	-.39178	-40.471	.04424	.40873	-.37495	.38002	-.40860
33	.40691	-.40238	-39.988	.04496	.42136	-.38516	.39247	-.41951
34	.41917	-.41256	-39.513	.04562	.43369	-.39498	.40466	-.43018
35	.43143	-.42261	-39.054	.04623	.44603	-.40466	.41687	-.44056
36	.44369	-.43248	-38.612	.04681	.45830	-.41419	.42909	-.45076
37	.45595	-.44219	-38.189	.04733	.47059	-.42359	.44132	-.46079
38	.46821	-.45177	-37.784	.04781	.48286	-.43287	.45357	-.47066
39	.48048	-.46120	-37.402	.04824	.49513	-.44204	.46582	-.48037
40	.49274	-.47052	-37.036	.04863	.50738	-.45111	.47809	-.48993
41	.50502	-.47971	-36.692	.04897	.51963	-.46007	.49036	-.49934
42	.51726	-.48879	-36.371	.04927	.53186	-.46895	.50255	-.50863
43	.52952	-.49777	-36.072	.04952	.54409	-.47776	.51494	-.51778
44	.54178	-.50665	-35.796	.04972	.55632	-.48649	.52723	-.52682
45	.55404	-.51544	-35.543	.04988	.56853	-.49516	.53954	-.53575
46	.56630	-.52418	-35.314	.04999	.58074	-.50378	.55185	-.54457
47	.57856	-.53283	-35.110	.05004	.59295	-.51236	.56417	-.55330
48	.59082	-.54142	-34.933	.05005	.60515	-.52090	.57649	-.56194
49	.60308	-.54996	-34.779	.05001	.61734	-.52942	.58881	-.57050
50	.61596	-.55848	-34.613	.04991	.63014	-.53834	.60179	-.57942
51	.62885	-.56726	-34.422	.04975	.64291	-.54722	.61479	-.58826
52	.64174	-.57654	-34.234	.04952	.65565	-.55606	.62782	-.59701
53	.65462	-.58526	-33.957	.04921	.66837	-.56485	.64088	-.60567
54	.66751	-.59389	-33.682	.04883	.68105	-.57358	.65397	-.61421
55	.68042	-.61243	-33.374	.04837	.69378	-.58224	.66709	-.62262
56	.69328	-.61087	-33.044	.04782	.70532	-.59082	.68025	-.63091
57	.70617	-.61919	-32.679	.04719	.71891	-.59933	.69343	-.63905
58	.71906	-.62748	-32.283	.04646	.73147	-.60776	.70665	-.64704
59	.73196	-.63547	-31.855	.04565	.74399	-.61609	.71990	-.65486
60	.74483	-.64341	-31.394	.04474	.75648	-.62432	.73318	-.66250
61	.75772	-.65120	-30.985	.04372	.76894	-.63244	.74649	-.66998
62	.77063	-.65883	-30.371	.04261	.78138	-.64045	.75983	-.67721
63	.78349	-.66638	-29.807	.04146	.79378	-.64834	.77320	-.68426
64	.79638	-.67359	-29.206	.04008	.80616	-.65618	.78660	-.69109
65	.80925	-.68070	-28.566	.03866	.81851	-.66373	.80002	-.69768
66	.82114	-.68709	-27.976	.03725	.82988	-.67064	.81240	-.70354
67	.83332	-.69332	-27.414	.03574	.84125	-.67746	.82479	-.70919
68	.84458	-.69941	-26.882	.03414	.85261	-.68419	.83718	-.71464
69	.85677	-.71537	-26.382	.03244	.86398	-.69084	.84956	-.71998

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.86865	-.71120	-25.913	.03065	.87535	-.69742	.86195	-.72498
71	.88053	-.71691	-25.479	.02875	.88671	-.70394	.87434	-.72989
72	.89241	-.72252	-25.078	.02674	.89807	-.71041	.88674	-.73463
73	.90428	-.72803	-24.712	.02463	.90943	-.71685	.89913	-.73922
74	.91616	-.73346	-24.382	.02241	.92079	-.72325	.91153	-.74366
75	.92804	-.73880	-24.088	.02007	.93213	-.72964	.92394	-.74797
76	.93991	-.74408	-23.830	.01763	.94348	-.73602	.93635	-.75214
77	.95179	-.74930	-23.610	.01506	.95481	-.74240	.94878	-.75620
78	.96367	-.75447	-23.427	.01237	.96613	-.74879	.96121	-.76014
79	.97555	-.75960	-23.282	.00956	.97744	-.75520	.97366	-.76399
80	.98742	-.76469	-23.175	.00663	.98873	-.76165	.98612	-.76774
81	.99930	-.76977	-23.107	.00356	1.00000	-.76813	.99860	-.77140

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 11

BETA1	=-47.736	(BLADE INLET ANGLE.)
BETA2	=-27.344	(BLADE OUTLET ANGLE.)
YZERO	= .01134	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .03713	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00149	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5349	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.9573	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.3553

STAGGER ANGLE =-43.159

CAMBER ANGLE =-20.442

SECTION AREA = .04347

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .51477
YBAR = -.51129

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .03168
IY = .30235
IXY = -.03197

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-40.234

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .000 2 (AT-40.234 WITH 'X' AXIS)
IPY = .30431 (AT-40.234 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.01175	0.01000	-47.786	.00351	.03305	.02118	.00045	-.00118
2	.01454	-.01415	-48.008	.00505	.01641	-.01247	.01266	-.01584
3	.02733	-.02841	-48.194	.00659	.02979	-.02621	.02487	-.03061
4	.04012	-.04275	-48.343	.00814	.04316	-.04004	.03707	-.04545
5	.05291	-.05715	-48.457	.00969	.05653	-.05394	.04928	-.06037
6	.06569	-.07161	-48.536	.01124	.06991	-.06789	.06148	-.07533
7	.07848	-.08609	-48.583	.01278	.08327	-.08187	.07369	-.09032
8	.09127	-.10059	-48.589	.01431	.09664	-.09586	.08591	-.10533
9	.10406	-.11509	-48.564	.01582	.10999	-.10985	.09813	-.12033
10	.11685	-.12956	-48.504	.01733	.12334	-.12382	.11036	-.13530
11	.12964	-.14400	-48.459	.01881	.13667	-.13775	.12260	-.15024
12	.14243	-.15837	-48.279	.02028	.14999	-.15153	.13486	-.16512
13	.15522	-.17268	-46.113	.02172	.16330	-.16543	.14713	-.17993

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16831	-.18689	-47.913	.02314	.17659	-.17913	.15942	-.19464
15	.18079	-.20099	-47.673	.02453	.18986	-.19273	.17172	-.20925
16	.19355	-.21496	-47.392	.02593	.20311	-.20620	.18405	-.22373
17	.20637	-.22879	-47.074	.02723	.21634	-.21952	.19640	-.23806
18	.21879	-.24296	-46.748	.02849	.22916	-.23230	.20841	-.25182
19	.23119	-.25516	-46.425	.02971	.24196	-.24494	.22043	-.26542
20	.24361	-.26815	-46.104	.03091	.25474	-.25744	.23247	-.27887
21	.25602	-.28098	-45.789	.03207	.26751	-.26980	.24453	-.29216
22	.26843	-.29367	-45.475	.03320	.28026	-.28203	.25660	-.30531
23	.28084	-.30622	-45.167	.03429	.29300	-.29413	.26868	-.31831
24	.29326	-.31864	-44.862	.03535	.30572	-.30611	.28079	-.33117
25	.30567	-.33093	-44.562	.03637	.31843	-.31797	.29291	-.34388
26	.31808	-.34309	-44.267	.03735	.33111	-.32972	.30505	-.35646
27	.33049	-.35513	-43.976	.03829	.34379	-.34135	.31720	-.36890
28	.34290	-.36704	-43.691	.03920	.35644	-.35287	.32936	-.38122
29	.35532	-.37884	-43.411	.04007	.36909	-.36429	.34155	-.39340
30	.36773	-.39053	-43.136	.04090	.38171	-.37560	.35375	-.40545
31	.38014	-.40210	-42.866	.04169	.39432	-.38682	.36596	-.41738
32	.39255	-.41357	-42.603	.04244	.40692	-.39795	.37819	-.42919
33	.40496	-.42493	-42.345	.04315	.41950	-.40898	.39043	-.44088
34	.41721	-.43604	-42.092	.04381	.43169	-.41978	.40252	-.45229
35	.42945	-.44705	-41.834	.04443	.44426	-.43049	.41463	-.46360
36	.44169	-.45795	-41.571	.04501	.45662	-.44112	.42675	-.47479
37	.45393	-.46876	-41.303	.04555	.46896	-.45165	.43890	-.48587
38	.46617	-.47946	-41.033	.04604	.48128	-.46210	.45106	-.49683
39	.47841	-.49006	-40.751	.04649	.49358	-.47245	.46323	-.50767
40	.49065	-.50056	-40.468	.04690	.50587	-.48272	.47543	-.51840
41	.50289	-.51095	-40.179	.04726	.51813	-.49283	.48764	-.52900
42	.51513	-.52123	-39.884	.04759	.53038	-.50297	.49987	-.53948
43	.52737	-.53140	-39.584	.04786	.54262	-.51296	.51212	-.54984
44	.53961	-.54147	-39.279	.04809	.55483	-.52286	.52439	-.56008
45	.55185	-.55142	-38.967	.04827	.56703	-.53266	.53667	-.57019
46	.56409	-.56127	-38.650	.04841	.57921	-.54237	.54897	-.58017
47	.57633	-.57100	-38.327	.04851	.59137	-.55198	.56129	-.59003
48	.58857	-.58062	-37.998	.04855	.60352	-.56149	.57363	-.59975
49	.60081	-.59013	-37.663	.04855	.61565	-.57091	.58598	-.60935
50	.61367	-.59999	-37.318	.04850	.62837	-.58.70	.59897	-.61928
51	.62652	-.60972	-36.953	.04839	.64137	-.59.38	.61198	-.62906
52	.63938	-.61933	-36.603	.04822	.65375	-.59997	.62500	-.63869
53	.65224	-.62882	-36.246	.04798	.66642	-.60947	.63805	-.64816
54	.66539	-.63818	-35.894	.04768	.67907	-.61887	.65112	-.65749
55	.67795	-.64742	-35.543	.04729	.69169	-.62818	.66420	-.66667
56	.69080	-.65655	-35.193	.04683	.70430	-.63741	.67731	-.67569
57	.70366	-.66556	-34.844	.04629	.71688	-.64656	.69044	-.68455
58	.71652	-.67445	-34.496	.04566	.72945	-.65563	.70358	-.69327
59	.72937	-.68323	-34.149	.04495	.74199	-.66463	.71676	-.70182
60	.74223	-.69189	-33.804	.04414	.75459	-.67355	.72995	-.71023
61	.75508	-.70044	-33.461	.04323	.76703	-.68241	.74317	-.71847
62	.76794	-.70888	-33.119	.04222	.77947	-.69120	.75640	-.72657
63	.78079	-.71722	-32.773	.04112	.79192	-.69993	.76966	-.73450
64	.79365	-.72544	-32.[illegible]	.03990	.80435	-.70860	.78295	-.74228
65	.80651	-.73356	-32.[illegible]	.03858	.81676	-.71722	.79626	-.74990
66	.81935	-.74157	-31.798	.03724	.82836	-.72524	.80874	-.75689
67	.83259	-.74948	-31.478	.03579	.83993	-.73322	.82124	-.76375
68	.84263	-.75581	-31.168	.03425	.85149	-.74116	.83377	-.77046
69	.85467	-.75335	-30.[illegible]	.03263	.86303	-.74916	.84631	-.77704

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.86671	-.77029	-30.555	.03084	.87455	-.75693	.85887	-.78348
71	.87875	-.77727	-30.251	.02896	.88605	-.76476	.87146	-.78978
72	.89079	-.78425	-29.949	.02698	.89753	-.77256	.88406	-.79594
73	.90283	-.79114	-29.650	.02488	.90899	-.78033	.89668	-.80196
74	.91487	-.79796	-29.353	.02266	.92043	-.78808	.90932	-.80783
75	.92692	-.80469	-29.058	.02032	.93185	-.79580	.92198	-.81357
76	.93896	-.81134	-28.[illegible]	.01786	.94326	-.80351	.93466	-.81917
77	.95100	-.81791	-28.476	.01528	.95464	-.81119	.94736	-.82462
78	.96304	-.82440	-28.189	.01257	.96601	-.81886	.96007	-.82994
79	.97508	-.83082	-27.904	.00973	.97736	-.82652	.97280	-.83511
80	.98712	-.83715	-27.623	.00676	.98869	-.83416	.98555	-.84015
81	.99916	-.84342	-27.344	.00365	1.00000	-.84180	.99832	-.84504

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 12

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BETA1     =-48.647    (BLADE INLET ANGLE.)
BETA2     =-31.272    (BLADE OUTLET ANGLE.)
YZERO     =  .00135   (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T         =  .03472   (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE      =  .00138   (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z         =  .6423    (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD      = 2.9167    (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.3554

STAGGER ANGLE  =-42.493

CAMBER ANGLE   =-17.375

SECTION AREA   = .04372

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

        XBAR =  .51754
        YBAR = -.53713

SECOND MOMENTS OF AREA ABOUT CENTROID

        IX   =  .00210
        IY   =  .00237
        IXY  = -.00216

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-42.553

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

        IPX  = .00011      (AT-42.553 WITH 'X' AXIS)
        IPY  = .00436      (AT-42.553 WITH 'Y' AXIS)
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00183	0.00000	-48.647	.00367	.00321	.00121	.00046	-.00121
2	.01458	-.01455	-48.932	.00511	.01650	-.01287	.01265	-.01623
3	.02732	-.02924	-49.178	.00655	.02983	-.02710	.02484	-.03138
4	.04006	-.04405	-49.386	.00800	.04310	-.04144	.03702	-.04665
5	.05280	-.05895	-49.556	.00945	.05640	-.05589	.04921	-.06202
6	.06555	-.07394	-49.689	.01090	.06970	-.07041	.06139	-.07747
7	.07829	-.08899	-49.786	.01235	.08300	-.08500	.07357	-.09297
8	.09103	-.10408	-49.847	.01379	.09630	-.09963	.08576	-.10852
9	.10377	-.11919	-49.872	.01522	.10959	-.11428	.09796	-.12409
10	.11652	-.13430	-49.862	.01664	.12288	-.12894	.11016	-.13967
11	.12926	-.14941	-49.817	.01804	.13615	-.14359	.12237	-.15523
12	.14200	-.16447	-49.736	.01943	.14941	-.15819	.13459	-.17075
13	.15474	-.17949	-49.618	.02080	.16266	-.17275	.14682	-.18623

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16749	-.19443	-49.465	.02214	.17590	-.18724	.15907	-.20163
15	.18023	-.20928	-49.274	.02347	.18912	-.20163	.17134	-.21694
16	.19297	-.22403	-49.045	.02476	.20232	-.21591	.18362	-.23214
17	.20571	-.23864	-48.777	.02603	.21550	-.23036	.19592	-.24722
18	.21797	-.25256	-48.501	.02722	.22816	-.24354	.20777	-.26158
19	.23022	-.26634	-48.226	.02839	.24083	-.25668	.21963	-.27579
20	.24247	-.27999	-47.954	.02952	.25343	-.27010	.23151	-.28987
21	.25472	-.29351	-47.683	.03063	.26604	-.28320	.24340	-.30382
22	.26697	-.30690	-47.414	.03170	.27864	-.29617	.25530	-.31762
23	.27922	-.32017	-47.148	.03274	.29122	-.30903	.26722	-.33130
24	.29147	-.33331	-46.884	.03375	.30379	-.32178	.27915	-.34485
25	.30372	-.34634	-46.622	.03473	.31634	-.33441	.29110	-.35826
26	.31597	-.35924	-46.363	.03567	.32888	-.34694	.30307	-.37155
27	.32823	-.37203	-46.107	.03658	.34141	-.35935	.31504	-.38472
28	.34048	-.38471	-45.853	.03746	.35392	-.37167	.32704	-.39776
29	.35273	-.39728	-45.602	.03830	.36641	-.38388	.33904	-.41068
30	.36498	-.40974	-45.354	.03911	.37889	-.39599	.35107	-.42348
31	.37723	-.42209	-45.113	.03988	.39136	-.40801	.36310	-.43616
32	.38948	-.43433	-44.868	.04061	.40381	-.41994	.37516	-.44872
33	.40173	-.44648	-44.630	.04131	.41624	-.43178	.38722	-.46118
34	.41391	-.45845	-44.394	.04197	.42859	-.44345	.39923	-.47344
35	.42608	-.47032	-44.153	.04258	.44091	-.45504	.41125	-.48559
36	.43826	-.48209	-43.909	.04316	.45323	-.46654	.42329	-.49764
37	.45043	-.49376	-43.662	.04371	.46552	-.47795	.43535	-.50957
38	.46261	-.50533	-43.410	.04421	.47780	-.48927	.44742	-.52138
39	.47478	-.51679	-43.155	.04467	.49006	-.50050	.45951	-.53309
40	.48696	-.52816	-42.896	.04509	.50231	-.51164	.47161	-.54467
41	.49913	-.53942	-42.632	.04548	.51453	-.52269	.48373	-.55614
42	.51131	-.55057	-42.365	.04582	.52675	-.53364	.49587	-.56750
43	.52348	-.56162	-42.093	.04612	.53894	-.54451	.50802	-.57873
44	.53566	-.57257	-41.818	.04638	.55112	-.55529	.52020	-.58985
45	.54783	-.58341	-41.538	.04660	.56328	-.56597	.53238	-.60085
46	.56001	-.59414	-41.254	.04677	.57543	-.57656	.54459	-.61172
47	.57218	-.60476	-40.965	.04691	.58756	-.58705	.55681	-.62247
48	.58436	-.61528	-40.672	.04700	.59967	-.59746	.56904	-.63310
49	.59653	-.62569	-40.374	.04704	.61177	-.60777	.58130	-.64361
50	.60929	-.63648	-40.061	.04705	.62443	-.61847	.59415	-.65448
51	.62205	-.64714	-39.747	.04700	.63708	-.62907	.60702	-.66521
52	.63481	-.65769	-39.435	.04690	.64970	-.63958	.61991	-.67581
53	.64756	-.66813	-39.124	.04674	.66231	-.65000	.63282	-.68626
54	.66032	-.67845	-38.813	.04652	.67490	-.66032	.64574	-.69657
55	.67308	-.68865	-38.504	.04623	.68747	-.67057	.65869	-.70674
56	.68584	-.69875	-38.195	.04586	.70001	-.68072	.67166	-.71677
57	.69859	-.70873	-37.888	.04542	.71254	-.69080	.68465	-.72665
58	.71135	-.71868	-37.582	.04490	.72504	-.70081	.69766	-.73639
59	.72411	-.72837	-37.278	.04429	.73752	-.71074	.71069	-.74599
60	.73687	-.73802	-36.975	.04360	.74998	-.72061	.72375	-.75544
61	.74962	-.74758	-36.673	.04281	.76241	-.73041	.73684	-.76474
62	.76238	-.75702	-36.373	.04193	.77481	-.74014	.74995	-.77390
63	.77514	-.76637	-36.075	.04094	.78719	-.74982	.76308	-.78291
64	.78789	-.77561	-35.779	.03985	.79954	-.75945	.77624	-.79178
65	.80065	-.78476	-35.484	.03866	.81187	-.76902	.78943	-.80050
66	.81335	-.79355	-35.200	.03739	.82383	-.77827	.80227	-.80882
67	.82545	-.80225	-34.918	.03601	.83576	-.78748	.81514	-.81701
68	.83785	-.81066	-34.639	.03452	.84766	-.79666	.82804	-.82506
69	.85325	-.81930	-34.362	.03292	.85954	-.80579	.84095	-.83297

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.86264	-.82781	-34.088	.03121	.87139	-.81489	.85390	-.84074
71	.87504	-.83616	-33.817	.02937	.88321	-.82396	.86687	-.84836
72	.88744	-.84443	-33.548	.02740	.89501	-.83301	.87987	-.85585
73	.89984	-.85261	-33.283	.02532	.90679	-.84202	.89289	-.86319
74	.91224	-.86070	-33.020	.02310	.91853	-.85102	.90594	-.87039
75	.92464	-.86872	-32.760	.02075	.93025	-.85999	.91902	-.87745
76	.93703	-.87666	-32.504	.01827	.94194	-.86896	.93213	-.88437
77	.94943	-.88452	-32.251	.01565	.95361	-.87790	.94526	-.89114
78	.96183	-.89231	-32.001	.01289	.96525	-.88684	.95842	-.89777
79	.97423	-.90002	-31.754	.00999	.97686	-.89577	.97160	-.90427
80	.98663	-.90766	-31.511	.00694	.98844	-.90469	.98481	-.91062
81	.99903	-.91522	-31.272	.00375	1.00000	-.91362	.99805	-.91682

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 13
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BETA1          =-49.491     (BLADE INLET ANGLE.)
BETA2          =-34.930     (BLADE OUTLET ANGLE.)
YZERO          = .00137     (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T              = .03250     (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE           = .00137     (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z              = .6500      (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD           = 2.8361     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD    = 1.4066

STAGGER ANGLE  =-44.730

CAMBER ANGLE   =-14.560

SECTION AREA   = .04417

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

          XBAR =  .52053
          YBAR = -.57496

SECOND MOMENTS OF AREA ABOUT CENTROID

          IX   =  .00238
          IY   =  .00241
          IXY  = -.00238

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS =-44.845

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

          IPX  = .00001      (AT-44.845 WITH 'X' AXIS)
          IPY  = .00475      (AT-44.845 WITH 'Y' AXIS)
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00193	0.00000	-49.491	.00385	.00339	.00125	.00046	-.00125
2	.01462	-.01495	-49.819	.00520	.01661	-.01327	.01264	-.01663
3	.02732	-.03006	-50.108	.00655	.02983	-.02796	.02481	-.03216
4	.04002	-.04532	-50.359	.00790	.04306	-.04280	.03697	-.04784
5	.05271	-.06071	-50.573	.00926	.05629	-.05777	.04914	-.06365
6	.06541	-.07620	-50.751	.01062	.06952	-.07284	.06130	-.07956
7	.07811	-.09178	-50.894	.01198	.08275	-.08808	.07346	-.09556
8	.09080	-.10743	-51.003	.01333	.09598	-.10324	.08562	-.11163
9	.10350	-.12314	-51.077	.01468	.10921	-.11853	.09779	-.12775
10	.11620	-.13887	-51.118	.01601	.12243	-.13385	.10996	-.14390
11	.12889	-.15462	-51.126	.01734	.13564	-.14918	.12214	-.16006
12	.14159	-.17036	-51.100	.01865	.14885	-.16451	.13433	-.17622
13	.15429	-.18608	-51.040	.01995	.16204	-.17981	.14653	-.19236

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16698	-.21176	-50.947	.02123	.17522	-.19507	.15874	-.20845
15	.17968	-.21738	-50.819	.02248	.18839	-.21027	.17097	-.22448
16	.19238	-.23291	-50.656	.02372	.20155	-.22539	.18320	-.24043
17	.20507	-.24835	-50.458	.02493	.21469	-.24041	.19546	-.25628
18	.21717	-.26295	-50.251	.02606	.22719	-.25461	.20715	-.27128
19	.22927	-.27744	-50.042	.02717	.23968	-.26871	.21886	-.28616
20	.24136	-.29182	-49.831	.02825	.25216	-.28271	.23057	-.30093
21	.25346	-.30610	-49.617	.02930	.26462	-.29661	.24230	-.31559
22	.26556	-.32027	-49.401	.03033	.27707	-.31040	.25405	-.33014
23	.27766	-.33433	-49.183	.03132	.28951	-.32409	.26580	-.34457
24	.28975	-.34828	-48.962	.03229	.30193	-.33768	.27757	-.35888
25	.30185	-.36212	-48.739	.03323	.31434	-.35117	.28936	-.37308
26	.31395	-.37586	-48.514	.03415	.32674	-.36455	.30116	-.38717
27	.32605	-.38948	-48.286	.03503	.33912	-.37783	.31297	-.40114
28	.33814	-.40300	-48.056	.03587	.35148	-.39101	.32480	-.41499
29	.35024	-.41641	-47.823	.03669	.36384	-.40419	.33664	-.42873
30	.36234	-.42971	-47.588	.03748	.37617	-.41707	.34850	-.44234
31	.37443	-.44289	-47.350	.03823	.38849	-.42994	.36038	-.45584
32	.38653	-.45597	-47.110	.03895	.40080	-.44272	.37226	-.46923
33	.39863	-.46894	-46.867	.03963	.41309	-.45539	.38417	-.48249
34	.41071	-.48177	-46.623	.04028	.42534	-.46794	.39607	-.49561
35	.42278	-.49450	-46.379	.04090	.43758	-.48039	.40798	-.50861
36	.43486	-.50712	-46.135	.04148	.44981	-.49275	.41991	-.52149
37	.44693	-.51963	-45.891	.04202	.46202	-.50501	.43185	-.53425
38	.45901	-.53203	-45.647	.04253	.47421	-.51717	.44381	-.54690
39	.47109	-.54433	-45.404	.04303	.48640	-.52924	.45578	-.55943
40	.48316	-.55653	-45.160	.04344	.49856	-.54122	.46776	-.57184
41	.49524	-.56862	-44.917	.04383	.51071	-.55310	.47976	-.58414
42	.50731	-.58061	-44.674	.04419	.52285	-.56490	.49178	-.59633
43	.51939	-.59250	-44.431	.04452	.53497	-.57661	.50381	-.60840
44	.53147	-.60429	-44.189	.04480	.54708	-.58823	.51585	-.62035
45	.54354	-.61598	-43.947	.04505	.55918	-.59976	.52791	-.63220
46	.55562	-.62757	-43.705	.04526	.57125	-.61121	.53998	-.64393
47	.56770	-.63906	-43.464	.04543	.58332	-.62258	.55207	-.65555
48	.57977	-.65046	-43.224	.04556	.59537	-.63386	.56417	-.66706
49	.59185	-.66176	-42.983	.04565	.60741	-.64507	.57629	-.67846
50	.60446	-.67347	-42.732	.04570	.61997	-.65669	.58896	-.69026
51	.61708	-.68508	-42.478	.04571	.63252	-.66822	.60165	-.70193
52	.62970	-.69658	-42.223	.04568	.64505	-.67966	.61435	-.71349
53	.64232	-.70798	-41.965	.04559	.65756	-.69103	.62707	-.72492
54	.65493	-.71927	-41.705	.04545	.67005	-.70231	.63982	-.73623
55	.66755	-.73046	-41.443	.04524	.68252	-.71350	.65258	-.74742
56	.68017	-.74155	-41.179	.04497	.69497	-.72463	.66536	-.75848
57	.69279	-.75254	-40.912	.04463	.70740	-.73567	.67817	-.76940
58	.70540	-.76342	-40.644	.04422	.71980	-.74664	.69100	-.78020
59	.71802	-.77428	-40.373	.04372	.73218	-.75754	.70386	-.79085
60	.73064	-.78488	-40.100	.04315	.74453	-.76837	.71674	-.80138
61	.74325	-.79545	-39.825	.04248	.75686	-.77914	.72965	-.81176
62	.75587	-.80592	-39.548	.04172	.76915	-.78983	.74259	-.82200
63	.76849	-.81629	-39.268	.04086	.78142	-.80047	.75556	-.83210
64	.78111	-.82655	-38.986	.03991	.79366	-.81104	.76855	-.84206
65	.79372	-.83671	-38.702	.03885	.80587	-.82155	.78158	-.85187
66	.80655	-.84693	-38.415	.03766	.81825	-.83210	.79485	-.86169
67	.81937	-.85705	-38.134	.03636	.83060	-.84275	.80815	-.87135
68	.83219	-.86707	-37.868	.03493	.84291	-.85328	.82147	-.88086
69	.84502	-.87699	-37.591	.03339	.85520	-.86376	.83483	-.89021

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85784	-.88681	-37.330	.03171	.86746	-.87420	.84823	-.89942
71	.87066	-.89655	-37.075	.02991	.87968	-.88461	.86165	-.90848
72	.88349	-.90619	-36.826	.02797	.89187	-.89500	.87510	-.91739
73	.89631	-.91575	-36.585	.02589	.90403	-.90536	.88859	-.92615
74	.90913	-.92523	-36.352	.02367	.91615	-.91570	.90212	-.93476
75	.92196	-.93463	-36.125	.02131	.92824	-.92602	.91567	-.94323
76	.93478	-.94395	-35.906	.01880	.94029	-.93634	.92927	-.95156
77	.94760	-.95320	-35.695	.01613	.95231	-.94665	.94290	-.95975
78	.96043	-.96238	-35.492	.01330	.96429	-.95696	.95656	-.96779
79	.97325	-.97149	-35.297	.01032	.97623	-.96728	.97027	-.97570
80	.98607	-.98053	-35.109	.00717	.98814	-.97760	.98401	-.98347
81	.99890	-.98952	-34.930	.00385	1.00000	-.98794	.99779	-.99110

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 14

BETA1	=-50.346	(BLADE INLET ANGLE.)
BETA2	=-38.382	(BLADE OUTLET ANGLE.)
YZERO	= .00137	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .03353	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00136	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .6583	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.7413	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.4633

STAGGER ANGLE =-46.934

CAMBER ANGLE =-11.965

SECTION AREA = .04439

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .52365
YBAR = -.61537

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00285
IY = .00246
IXY = -.00264

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 42.858

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00533 (AT 42.858 WITH 'X' AXIS)
IPY = .00001 (AT 42.858 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00211	0.01029	-50.346	.00401	.00355	.00128	.00046	-.00128
2	.01473	-.01542	-50.705	.00527	.01674	-.01375	.01266	-.01709
3	.02740	-.03103	-51.026	.00655	.02995	-.02897	.02486	-.03309
4	.04013	-.04681	-51.312	.00782	.04315	-.04436	.03705	-.04925
5	.05280	-.06274	-51.564	.00919	.05637	-.05991	.04924	-.06557
6	.06557	-.07886	-51.782	.01039	.06958	-.07559	.06142	-.08202
7	.07820	-.09495	-51.969	.01167	.08279	-.09139	.07363	-.09858
8	.09093	-.11127	-52.123	.01295	.09601	-.10729	.08579	-.11525
9	.10363	-.12763	-52.247	.01423	.10922	-.12328	.09797	-.13199
10	.11633	-.14406	-52.341	.01553	.12243	-.13933	.11016	-.14880
11	.12899	-.16054	-52.404	.01676	.13563	-.15542	.12235	-.16565
12	.14169	-.17704	-52.439	.01801	.14883	-.17155	.13455	-.18253
13	.15439	-.19356	-52.442	.01925	.16202	-.18769	.14676	-.19942

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16739	-.21806	-52.416	.02047	.17520	-.20382	.15896	-.21631
15	.17979	-.22655	-52.361	.02168	.18837	-.21993	.17121	-.23317
16	.19249	-.24299	-52.276	.02287	.20153	-.23600	.18344	-.24999
17	.20519	-.25938	-52.160	.02403	.21468	-.25200	.19570	-.26675
18	.21718	-.27476	-52.033	.02512	.22708	-.26705	.20728	-.28251
19	.22917	-.29011	-51.895	.02618	.23947	-.28203	.21887	-.29819
20	.24117	-.30537	-51.754	.02721	.25185	-.29694	.23048	-.31379
21	.25316	-.32054	-51.603	.02823	.26422	-.31177	.24210	-.32931
22	.26515	-.33563	-51.443	.02922	.27658	-.32652	.25373	-.34474
23	.27714	-.35063	-51.275	.03019	.28892	-.34119	.26537	-.36007
24	.28914	-.36554	-51.098	.03113	.30125	-.35577	.27703	-.37531
25	.30113	-.38035	-50.912	.03204	.31357	-.37025	.28870	-.39045
26	.31312	-.39507	-50.717	.03293	.32587	-.38464	.30038	-.40549
27	.32512	-.40967	-50.513	.03379	.33815	-.39893	.31208	-.42042
28	.33711	-.42417	-50.299	.03461	.35043	-.41312	.32379	-.43523
29	.34910	-.43856	-50.076	.03541	.36268	-.42720	.33552	-.44993
30	.36109	-.45284	-49.842	.03618	.37492	-.44117	.34727	-.46450
31	.37309	-.46699	-49.593	.03692	.38715	-.45502	.35903	-.47895
32	.38508	-.48102	-49.345	.03763	.39935	-.46876	.37081	-.49327
33	.39707	-.49492	-49.083	.03833	.41154	-.48237	.38260	-.50746
34	.40907	-.50865	-48.813	.03896	.42369	-.49583	.39438	-.52147
35	.42099	-.52225	-48.552	.03955	.43582	-.50916	.40617	-.53534
36	.43295	-.53573	-48.296	.04013	.44793	-.52239	.41797	-.54908
37	.44491	-.54910	-48.046	.04067	.46003	-.53550	.42979	-.56269
38	.45687	-.56236	-47.802	.04118	.47212	-.54851	.44162	-.57617
39	.46883	-.57548	-47.564	.04166	.48423	-.56142	.45346	-.58953
40	.48079	-.58851	-47.332	.04210	.49627	-.57424	.46531	-.60277
41	.49275	-.60143	-47.107	.04251	.50832	-.58697	.47718	-.61590
42	.50471	-.61425	-46.889	.04288	.52036	-.59960	.48906	-.62891
43	.51667	-.62698	-46.678	.04322	.53239	-.61216	.50095	-.64181
44	.52863	-.63962	-46.474	.04352	.54441	-.62453	.51285	-.65461
45	.54059	-.65217	-46.278	.04379	.55641	-.63703	.52476	-.66730
46	.55255	-.66463	-46.089	.04403	.56841	-.64936	.53669	-.67990
47	.56451	-.67701	-45.908	.04423	.58039	-.66163	.54863	-.69240
48	.57647	-.68932	-45.735	.04439	.59236	-.67383	.56057	-.70481
49	.58843	-.70156	-45.573	.04452	.60432	-.68598	.57253	-.71714
50	.60039	-.71424	-45.399	.04461	.61678	-.69858	.58501	-.72990
51	.61335	-.72684	-45.219	.04466	.62921	-.71111	.59751	-.74257
52	.62583	-.73936	-45.031	.04467	.64163	-.72358	.61003	-.75515
53	.63833	-.75180	-44.834	.04464	.65403	-.73597	.62256	-.76763
54	.65076	-.76415	-44.629	.04457	.66642	-.74829	.63511	-.78001
55	.66323	-.77641	-44.415	.04443	.67878	-.76054	.64768	-.79228
56	.67571	-.78858	-44.191	.04424	.69112	-.77272	.66028	-.80444
57	.68816	-.80065	-43.959	.04399	.70343	-.78482	.67290	-.81648
58	.70063	-.81262	-43.718	.04366	.71572	-.79684	.68554	-.82840
59	.71310	-.82449	-43.467	.04326	.72798	-.80879	.69822	-.84019
60	.72557	-.83626	-43.206	.04278	.74021	-.82066	.71092	-.85185
61	.73803	-.84791	-42.935	.04222	.75241	-.83246	.72365	-.86337
62	.75050	-.85945	-42.654	.04157	.76458	-.84417	.73642	-.87474
63	.76297	-.87088	-42.363	.04083	.77672	-.85580	.74921	-.88596
64	.77543	-.88219	-42.061	.03998	.78883	-.86735	.76204	-.89703
65	.78790	-.89338	-41.748	.03904	.80090	-.87882	.77490	-.90794
66	.80178	-.91507	-41.419	.03793	.81363	-.89385	.78853	-.91930
67	.81426	-.91684	-41.133	.03677	.82632	-.90281	.80220	-.93046
68	.82744	-.92837	-40.802	.03534	.83898	-.91470	.81589	-.94145
69	.84062	-.93939	-40.516	.03385	.85161	-.92653	.82962	-.95226

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85380	-.95860	-40.245	.03222	.86420	-.93830	.84339	-.96290
71	.86698	-.96170	-39.990	.03045	.87676	-.95014	.85719	-.97337
72	.88016	-.97271	-39.751	.02854	.88928	-.96174	.87103	-.98368
73	.89333	-.98363	-39.529	.02649	.90176	-.97342	.88491	-.99384
74	.90651	-.99446	-39.323	.02426	.91420	-.98518	.89883	-1.00385
75	.91969	-1.00522	-39.135	.02188	.92660	-.99674	.91279	-1.01371
76	.93287	-1.01591	-38.964	.01934	.93895	-1.00840	.92679	-1.02343
77	.94605	-1.02654	-38.811	.01662	.95126	-1.02007	.94084	-1.03302
78	.95923	-1.03712	-38.676	.01374	.96352	-1.03176	.95494	-1.04248
79	.97241	-1.04764	-38.560	.01067	.97573	-1.04347	.96908	-1.05182
80	.98559	-1.05813	-38.461	.00741	.98789	-1.05523	.98328	-1.06103
81	.99877	-1.06858	-38.382	.00397	1.00000	-1.06703	.99754	-1.07014

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 15

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BETA1    =-51.265     (BLADE INLET ANGLE.)
BETA2    =-41.544     (BLADE OUTLET ANGLE.)
YZERO    =  .01136    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T        =  .02985    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE     =  .01134    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z        =  .6662     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD     = 2.6339     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.5275

STAGGER ANGLE =-49.151

CAMBER ANGLE = -9.671

SECTION AREA = .04649

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .52481
YBAR = -.66241

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00146
IY = .02254
IXY = -.00295

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 40.55)

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .02599 (AT 41.550 WITH 'X' AXIS)
IPY = .00071 (AT 40.555 WITH 'Y' AXIS)

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00207	0.00000	-51.265	.00414	.00369	.00130	.00046	-.00130
2	.01482	-.01662	-51.673	.00575	.01692	-.01436	.01273	-.01767
3	.02757	-.03226	-52.344	.00656	.03016	-.03124	.02493	-.03427
4	.04033	-.04871	-52.378	.00778	.04341	-.04633	.03725	-.05108
5	.05308	-.06534	-52.678	.00902	.05666	-.06261	.04953	-.06807
6	.06583	-.08215	-52.944	.01023	.06992	-.07907	.06175	-.08524
7	.07858	-.09911	-53.178	.01147	.08317	-.09566	.07399	-.10255
8	.09134	-.11621	-53.381	.01273	.09643	-.11243	.08624	-.12000
9	.10409	-.13343	-53.553	.01393	.10969	-.12929	.09849	-.13756
10	.11684	-.15074	-53.695	.01515	.12295	-.14625	.11073	-.15523
11	.12959	-.16813	-53.838	.01637	.13620	-.16330	.12299	-.17297
12	.14235	-.18559	-53.892	.01758	.14945	-.18041	.13524	-.19077
13	.15510	-.20309	-53.948	.01878	.16269	-.19757	.14750	-.20862

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16785	-.22062	-53.976	.01997	.17593	-.21475	.15977	-.22650
15	.18068	-.23816	-53.975	.02114	.18915	-.23194	.17205	-.24438
16	.19335	-.25569	-53.947	.02230	[illegible]	-.24913	.18434	-.26225
17	.20611	-.27319	-53.890	.02344	[illegible]	-.26628	.19664	-.28010
18	.21836	-.28956	-53.818	.02449	.22795	-.28233	.20818	-.29679
19	.23032	-.30588	-53.735	.02552	.24031	-.29833	.21973	-.31343
20	.24197	-.32215	-53.641	.02653	.25266	[illegible]	.23129	-.33001
21	.25393	-.33836	-53.535	.02753	.26500	[illegible]	.24286	-.34654
22	.26588	-.35450	-53.417	.02849	.27732	-.34631	.25444	[illegible]
23	.27784	-.37057	-53.288	.02944	.28964	-.36177	.26604	-.37937
24	.28979	-.38656	-53.146	.03036	.30194	-.37746	.27765	-.39567
25	.30175	-.40247	-52.992	.03126	.31423	-.39306	.28927	-.41187
26	.31370	-.41828	-52.826	.03213	.32650	-.40857	.30090	-.42799
27	.32566	-.43399	-52.646	.03298	.33876	-.42399	.31255	-.44400
28	.33761	-.44960	-52.454	.03379	.35101	-.43931	.32422	-.45990
29	.34957	-.46510	-52.248	.03458	.36324	-.45451	.33590	-.47569
30	.36152	-.48048	-52.029	.03534	.37545	-.46961	.34759	-.49135
31	.37348	-.49573	-51.795	.03607	.38765	-.48453	.35930	-.50689
32	.38543	-.51086	-51.547	.03677	.39983	-.49942	.37103	[illegible]
33	.39739	-.52584	-51.283	.03744	.41200	-.51413	.38278	[illegible]
34	.40922	-.54053	-51.019	.03808	.42402	-.52856	.39442	-.55251
35	.42106	-.55509	-50.762	.03868	.43604	-.54286	.40608	-.56732
36	.43289	-.56952	[illegible]	.03925	.44804	-.55704	.41775	-.58200
37	.44473	-.58382	-50.273	.03979	.46003	-.57110	.42942	-.59654
38	.45656	-.59800	-50.041	.04030	.47201	-.58506	.44112	-.61094
39	.46840	-.61207	-49.818	.04078	.48397	-.59891	.45282	-.62523
40	.48023	-.62603	-49.604	.04123	.49593	-.61267	.46453	-.63939
41	.49207	-.63989	-49.400	.04164	.50788	-.62634	.47626	-.65344
42	.50390	-.65365	-49.206	.04203	.51981	-.63992	.48799	-.66738
43	.51574	-.66732	-49.021	.04238	.53173	-.65342	.49974	-.68121
44	.52757	-.68090	-48.847	.04270	.54364	-.66685	.51150	-.69495
45	.53940	-.69440	-48.684	.04298	.55555	-.68021	.52326	-.70859
46	.55124	-.71783	-48.531	.04324	.56744	-.69351	.53504	-.72214
47	.56307	-.72118	-48.389	.04346	.57932	-.70676	.54683	-.73561
48	.57491	-.73448	-48.258	.04365	.59119	-.71995	.55863	-.74901
49	.58674	-.74771	-48.138	.04380	.60305	-.73310	.57043	-.76233
50	.59906	-.76143	-48.014	.04392	.61538	-.74674	.58274	-.77612
51	.61138	-.77508	-47.879	.04401	.62770	-.76032	.59506	-.78984
52	.62369	-.78867	-47.732	.04406	.63999	-.77385	.60739	-.80348
53	.63601	-.80218	-47.573	.04407	.65227	-.78732	.61975	-.81705
54	.64832	-.81562	-47.402	.04403	.66453	-.80072	.63212	-.83052
55	.66064	-.82897	-47.219	.04396	.67677	-.81404	.64451	-.84390
56	.67236	-.84223	-47.024	.04383	.68899	-.82730	.65692	-.85717
57	.68527	-.85541	-46.816	.04364	.70118	-.84047	.66936	-.87034
58	.69759	-.86848	-46.595	.04338	.71335	-.85357	.68183	-.88338
59	.70991	-.88145	-46.361	.04306	.72549	-.86659	.69432	-.89631
60	.72222	-.89431	-46.113	.04266	.73760	-.87952	.70685	-.90910
61	.73454	-.90705	-45.852	.04218	.74967	-.89236	.71940	-.92174
62	.74685	-.91968	-45.576	.04162	.76172	-.90512	.73199	-.93425
63	.75917	-.93219	-45.285	.04096	.77372	-.91778	.74462	-.94660
64	.77149	-.94456	-44.980	.04021	.78570	-.93034	.75727	-.95878
65	.78380	-.95680	-44.659	.03936	.79764	-.94280	.76997	-.97080
66	.79723	-.96999	-44.310	.03832	.81061	-.95628	[illegible]	-.98370
67	.81066	-.98302	-43.979	.03715	.82355	-.96965	.79776	-.99638
68	.82408	-.99590	-43.668	.03584	.83646	-.98294	.81171	-1.00887
69	.83751	-1.00866	-43.377	.03440	.84932	-.99615	.82570	-1.02116

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85094	-1.02128	-43.107	.03281	.86215	-1.00931	.83973	-1.03326
71	.86437	-1.03379	-42.858	.03107	.87493	-1.02241	.85380	-1.04518
72	.87779	-1.04620	-42.631	.02917	.88767	-1.03547	.86791	-1.05694
73	.89122	-1.05852	-42.427	.02712	.90037	-1.04851	.88207	-1.06853
74	.90465	-1.07075	-42.245	.02489	.91302	-1.06154	.89628	-1.07997
75	.91808	-1.08291	-42.087	.02250	.92561	-1.07456	.91054	-1.09126
76	.93153	-1.09501	-41.952	.01992	.93816	-1.08760	.92484	-1.10242
77	.94493	-1.10705	-41.842	.01715	.95065	-1.10066	.93921	-1.11344
78	.95836	-1.11906	-41.756	.01420	.96308	-1.11376	.95363	-1.12435
79	.97178	-1.13103	-41.694	.01104	.97546	-1.12691	.96811	-1.13515
80	.98521	-1.14298	-41.656	.00768	.98776	-1.14012	.98266	-1.14585
81	.99864	-1.15492	-41.644	.00410	1.00000	-1.15339	.99728	-1.15646

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 16

```
BETA1     =-52.292     (BLADE INLET ANGLE.)
BETA2     =-44.715     (BLADE OUTLET ANGLE.)
YZERO     =  .00133    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T         =  .02749    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE      =  .00133    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z         =  .6735     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD      = 2.5.3      (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.6314

STAGGER ANGLE =-51.473

CAMBER ANGLE = -7.573

SECTION AREA = .04864

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .52994
YBAR = -.71435

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00426
IY = .00266
IXY = -.00336

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 38.230

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00693 (AT 38.230 WITH 'X' AXIS)
IPY = .00001 (AT 38.230 WITH 'Y' AXIS)

POINT	MEANLINE DATA				SURFACE COORDINATE DATA			
NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
1	.00213	0.0000	-52.292	.00427	.01382	.00131	.00045	-.00131
2	.01493	-.01677	-52.783	.00544	.01715	-.01513	.01282	-.01842
3	.02784	-.03384	-53.229	.00662	.03049	-.03185	.02519	-.03582
4	.04069	-.05116	-53.632	.00780	.04383	-.04885	.03755	-.05348
5	.05354	-.06873	-53.995	.00900	.05718	-.06609	.04990	-.07138
6	.06639	-.08653	-54.319	.01021	.07054	-.08355	.06225	-.08950
7	.07924	-.10452	-54.605	.01141	.08390	-.10122	.07459	-.10783
8	.09210	-.12270	-54.856	.01262	.09726	-.11906	.08694	-.12633
9	.10495	-.14103	-55.072	.01383	.11062	-.13707	.09928	-.14499
10	.11780	-.15950	-55.255	.01504	.12398	-.15521	.11162	-.16378
11	.13065	-.17808	-55.405	.01624	.13734	-.17347	.12397	-.18269
12	.14350	-.19675	-55.523	.01743	.15069	-.19182	.13632	-.20169
13	.15636	-.21550	-55.610	.01862	.16404	-.21024	.14867	-.22076

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16921	-.23430	-55.666	.01980	.17730	-.22872	.16103	-.23988
15	.18206	-.25313	-55.692	.02096	.19072	-.24722	.17340	-.25904
16	.19491	-.27196	-55.687	.02211	.20404	-.26573	.18578	-.27819
17	.20776	-.29078	-55.651	.02324	.21736	-.28423	.19817	-.29734
18	.21976	-.30831	-55.598	.02427	.22977	-.30146	.20974	-.31517
19	.23175	-.32581	-55.535	.02529	.24218	-.31865	.22132	-.33297
20	.24374	-.34326	-55.462	.02630	.25457	-.33580	.23291	-.35071
21	.25573	-.36065	-55.378	.02726	.26696	-.35291	.24451	-.36840
22	.26773	-.37799	-55.283	.02824	.27933	-.36995	.25612	-.38604
23	.27972	-.39527	-55.177	.02918	.29170	-.38694	.26774	-.40360
24	.29171	-.41247	-55.061	.03009	.30405	-.40385	.27938	-.42109
25	.30370	-.42960	-54.933	.03099	.31639	-.42070	.29102	-.43850
26	.31571	-.44664	-54.794	.03186	.32871	-.43746	.30268	-.45582
27	.32769	-.46359	-54.643	.03270	.34102	-.45413	.31436	-.47305
28	.33968	-.48044	-54.480	.03351	.35332	-.47071	.32604	-.49018
29	.35167	-.49719	-54.305	.03430	.36560	-.48718	.33774	-.50720
30	.36367	-.51382	-54.118	.03507	.37787	-.50355	.34946	-.52410
31	.37566	-.53034	-53.918	.03580	.39013	-.51980	.36119	-.54088
32	.38765	-.54674	-53.705	.03650	.40236	-.53593	.37294	-.55754
33	.39964	-.56300	-53.478	.03718	.41458	-.55194	.38471	-.57406
34	.41135	-.57874	-53.253	.03781	.42650	-.56743	.39621	-.59005
35	.42336	-.59436	-53.034	.03841	.43840	-.58281	.40772	-.60591
36	.43477	-.60986	-52.821	.03898	.45030	-.59808	.41924	-.62163
37	.44648	-.62523	-52.614	.03952	.46218	-.61324	.43078	-.63723
38	.45818	-.64050	-52.413	.04003	.47405	-.62829	.44232	-.65271
39	.46989	-.65566	-52.219	.04051	.48590	-.64325	.45388	-.66807
40	.48160	-.67071	-52.032	.04097	.49775	-.65811	.46545	-.68331
41	.49331	-.68566	-51.852	.04139	.50958	-.67288	.47703	-.69845
42	.50502	-.70052	-51.679	.04178	.52141	-.68757	.48863	-.71348
43	.51672	-.71529	-51.514	.04214	.53322	-.70218	.50023	-.72841
44	.52843	-.72998	-51.357	.04247	.54502	-.71672	.51185	-.74324
45	.54014	-.74458	-51.207	.04277	.55681	-.73118	.52347	-.75798
46	.55185	-.75911	-51.065	.04304	.56859	-.74559	.53511	-.77263
47	.56356	-.77357	-50.931	.04328	.58036	-.75993	.54676	-.78721
48	.57526	-.78796	-50.806	.04348	.59211	-.77422	.55841	-.80170
49	.58697	-.80229	-50.689	.04366	.60386	-.78846	.57008	-.81611
50	.59914	-.81711	-50.567	.04380	.61605	-.80320	.58222	-.83102
51	.61130	-.83187	-50.438	.04391	.62823	-.81789	.59438	-.84585
52	.62347	-.84656	-50.294	.04398	.64039	-.83251	.60655	-.86061
53	.63564	-.86117	-50.143	.04402	.65253	-.84706	.61874	-.87528
54	.64780	-.87570	-49.982	.04402	.66466	-.86155	.63094	-.88985
55	.65997	-.89015	-49.811	.04398	.67677	-.87596	.64317	-.90434
56	.67213	-.90450	-49.629	.04389	.68885	-.89029	.65541	-.91872
57	.68430	-.91877	-49.437	.04375	.70092	-.90454	.66768	-.93299
58	.69646	-.93293	-49.234	.04355	.71296	-.91871	.67997	-.94715
59	.70863	-.94699	-49.019	.04328	.72497	-.93279	.69229	-.96118
60	.72080	-.96093	-48.793	.04295	.73695	-.94679	.70464	-.97508
61	.73296	-.97477	-48.556	.04253	.74890	-.96070	.71702	-.98885
62	.74513	-.98849	-48.306	.04203	.76082	-.97451	.72944	-1.00247
63	.75729	-1.00208	-48.044	.04144	.77270	-.98823	.74188	-1.01594
64	.76946	-1.01555	-47.770	.04076	.78455	-1.00186	.75437	-1.02925
65	.78162	-1.02889	-47.483	.03998	.79636	-1.01538	.76689	-1.04240
66	.79518	-1.04359	-47.163	.03898	.80947	-1.03034	.78089	-1.05684
67	.80873	-1.05813	-46.861	.03786	.82255	-1.04519	.79492	-1.07107
68	.82229	-1.07252	-46.577	.03659	.83558	-1.05995	.80900	-1.08510
69	.83584	-1.08678	-46.310	.03517	.84856	-1.07463	.82313	-1.09893

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.84940	-1.10091	-46.063	.03361	.86150	-1.08925	.83730	-1.11257
71	.86295	-1.11492	-45.835	.03186	.87439	-1.10381	.85152	-1.12602
72	.87651	-1.12882	-45.627	.02998	.88723	-1.11834	.86579	-1.13931
73	.89007	-1.14263	-45.440	.02791	.90001	-1.13284	.88012	-1.15242
74	.90362	-1.15636	-45.273	.02566	.91274	-1.14733	.89450	-1.16539
75	.91718	-1.17001	-45.128	.02322	.92540	-1.16181	.90895	-1.17820
76	.93073	-1.18359	-45.004	.02059	.93801	-1.17631	.92345	-1.19087
77	.94429	-1.19712	-44.902	.01776	.95055	-1.19083	.93802	-1.20341
78	.95784	-1.21061	-44.823	.01471	.96303	-1.20539	.95266	-1.21583
79	.97140	-1.22407	-44.765	.01145	.97543	-1.22000	.96736	-1.22814
80	.98495	-1.23751	-44.730	.00797	.98775	-1.23458	.98215	-1.24033
81	.99851	-1.25093	-44.718	.00425	1.00000	-1.24942	.99701	-1.25244

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 17

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BETA1        =-53.457     (BLADE INLET ANGLE.)
BETA2        =-47.621     (BLADE OUTLET ANGLE.)
YZERO        =  .00131    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T            =  .02650    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE         =  .00131    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z            =  .6800     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD         = 2.3593     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.6855

STAGGER ANGLE  =-53.656

CAMBER ANGLE   = -5.837

SECTION AREA   = .05197

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

          XBAR =  .53307
          YBAR = -.77215

SECOND MOMENTS OF AREA ABOUT CENTROID

          IX   =  .00541
          IY   =  .08284
          IXY  = -.00390

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 35.894

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

          IPX  = .00823      (AT 35.894 WITH 'X' AXIS)
          IPY  = .08001      (AT 35.894 WITH 'Y' AXIS)
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00221	0.00000	-53.457	.00442	.00398	.00131	.00043	-.00131
2	.01520	-.01770	-54.000	.00557	.01745	-.01606	.01294	-.01934
3	.02818	-.03574	-54.494	.00674	.03093	-.03379	.02544	-.03770
4	.04117	-.05418	-54.941	.00792	.04441	-.05183	.03793	-.05638
5	.05416	-.07275	-55.346	.00912	.05791	-.07016	.05041	-.07534
6	.06715	-.09167	-55.710	.01032	.07141	-.08877	.06288	-.09458
7	.08013	-.11084	-56.034	.01152	.08491	-.10762	.07536	-.11405
8	.09312	-.13022	-56.321	.01273	.09842	-.12669	.08783	-.13375
9	.10611	-.14981	-56.573	.01394	.11193	-.14597	.10029	-.15365
10	.11910	-.16957	-56.790	.01515	.12543	-.16542	.11276	-.17372
11	.13208	-.18948	-56.974	.01635	.13894	-.18502	.12523	-.19394
12	.14507	-.20952	-57.125	.01756	.15245	-.20475	.13770	-.21428
13	.15806	-.22966	-57.245	.01875	.16595	-.22459	.15018	-.23474

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17135	-.24989	-57.334	.01994	.17944	-.24451	.16266	-.25527
15	.18434	-.27017	-57.392	.02111	.19293	-.26448	.17514	-.27586
16	.19732	-.29048	-57.420	.02227	.20641	-.28449	.18764	-.29648
17	.21031	-.31081	-57.418	.02341	.21987	-.30451	.20015	-.31711
18	.22213	-.32977	-57.397	.02446	.23244	-.32318	.21183	-.33636
19	.23425	-.34871	-57.364	.02553	.24499	-.34183	.22352	-.35558
20	.24638	-.36762	-57.320	.02651	.25753	-.36046	.23522	-.37478
21	.25850	-.38650	-57.265	.02751	.27007	-.37906	.24693	-.39394
22	.27062	-.40533	-57.198	.02849	.28259	-.39761	.25865	-.41305
23	.28274	-.42411	-57.120	.02944	.29510	-.41612	.27038	-.43210
24	.29486	-.44283	-57.029	.03038	.30760	-.43456	.28212	-.45110
25	.30698	-.46148	-56.927	.03129	.32009	-.45294	.29388	-.47002
26	.31911	-.48006	-56.813	.03217	.33257	-.47125	.30564	-.48886
27	.33123	-.49854	-56.687	.03303	.34503	-.48947	.31743	-.50762
28	.34335	-.51694	-56.548	.03386	.35748	-.50761	.32922	-.52627
29	.35547	-.53524	-56.397	.03467	.36991	-.52564	.34103	-.54483
30	.36759	-.55342	-56.232	.03545	.38233	-.54357	.35286	-.56327
31	.37971	-.57149	-56.054	.03620	.39473	-.56138	.36470	-.58160
32	.39183	-.58943	-55.862	.03692	.40711	-.57908	.37656	-.59979
33	.40396	-.60724	-55.656	.03761	.41948	-.59664	.38843	-.61785
34	.41554	-.62414	-55.455	.03824	.43129	-.61330	.39980	-.63498
35	.42713	-.64091	-55.259	.03884	.44309	-.62984	.41117	-.65198
36	.43872	-.65756	-55.070	.03942	.45488	-.64628	.42256	-.66885
37	.45031	-.67410	-54.886	.03996	.46665	-.66260	.43396	-.68559
38	.46190	-.69052	-54.708	.04048	.47842	-.67883	.44538	-.70222
39	.47348	-.70684	-54.537	.04097	.49017	-.69496	.45680	-.71873
40	.48507	-.72306	-54.373	.04143	.50191	-.71099	.46823	-.73513
41	.49666	-.73918	-54.215	.04186	.51364	-.72694	.47968	-.75142
42	.50825	-.75521	-54.065	.04226	.52536	-.74281	.49114	-.76761
43	.51984	-.77116	-53.921	.04263	.53706	-.75861	.50261	-.78371
44	.53142	-.78702	-53.785	.04297	.54876	-.77433	.51409	-.79972
45	.54301	-.80281	-53.656	.04328	.56044	-.78998	.52558	-.81563
46	.55460	-.81852	-53.534	.04356	.57212	-.80558	.53708	-.83147
47	.56619	-.83417	-53.421	.04381	.58378	-.82111	.54860	-.84722
48	.57778	-.84975	-53.315	.04403	.59543	-.83660	.56012	-.86291
49	.58936	-.86528	-53.217	.04422	.60707	-.85204	.57166	-.87852
50	.60135	-.88132	-53.115	.04438	.61913	-.86801	.58363	-.89464
51	.61343	-.89730	-53.003	.04450	.63117	-.88391	.59562	-.91069
52	.62541	-.91322	-52.881	.04459	.64319	-.89976	.60763	-.92667
53	.63743	-.92906	-52.750	.04465	.65520	-.91554	.61966	-.94257
54	.64944	-.94482	-52.607	.04467	.66719	-.93125	.63170	-.95838
55	.66146	-.96049	-52.455	.04465	.67916	-.94689	.64376	-.97410
56	.67347	-.97608	-52.291	.04459	.69111	-.96245	.65584	-.98972
57	.68549	-.99157	-52.117	.04448	.70304	-.97792	.66794	-1.00523
58	.69750	-1.00697	-51.931	.04431	.71495	-.99331	.68006	-1.02063
59	.70952	-1.02226	-51.734	.04407	.72682	-1.00861	.69222	-1.03590
60	.72154	-1.03743	-51.526	.04377	.73867	-1.02382	.70440	-1.05105
61	.73355	-1.05249	-51.305	.04339	.75048	-1.03893	.71662	-1.06606
62	.74557	-1.06743	-51.072	.04292	.76226	-1.05395	.72887	-1.08092
63	.75758	-1.08224	-50.827	.04237	.77401	-1.06886	.74116	-1.09563
64	.76960	-1.09692	-50.568	.04172	.78571	-1.08367	.75349	-1.11017
65	.78161	-1.11147	-50.296	.04097	.79738	-1.09836	.76585	-1.12455
66	.79516	-1.12769	-49.990	.04003	.81046	-1.11483	.77984	-1.14055
67	.80871	-1.14375	-49.700	.03889	.82354	-1.13117	.79388	-1.15632
68	.82226	-1.15964	-49.426	.03763	.83655	-1.14741	.80796	-1.17188
69	.83580	-1.17539	-49.170	.03622	.84950	-1.16355	.82210	-1.18723

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.84935	-1.19100	-48.931	.03464	.86241	-1.17962	.83629	-1.20238
71	.86290	-1.20649	-48.711	.03289	.87526	-1.19564	.85054	-1.21734
72	.87644	-1.22186	-48.510	.03097	.88804	-1.21160	.86484	-1.23212
73	.88999	-1.23713	-48.329	.02886	.90077	-1.22753	.87921	-1.24672
74	.90354	-1.25230	-48.167	.02656	.91343	-1.24345	.89364	-1.26116
75	.91709	-1.26740	-48.026	.02406	.92603	-1.25935	.90814	-1.27545
76	.93063	-1.28243	-47.905	.02136	.93856	-1.27527	.92271	-1.28958
77	.94418	-1.29739	-47.806	.01844	.95101	-1.29120	.93735	-1.30359
78	.95773	-1.31232	-47.727	.01529	.96338	-1.30717	.95207	-1.31746
79	.97127	-1.32720	-47.670	.01191	.97568	-1.32319	.96687	-1.33121
80	.98482	-1.34207	-47.635	.00829	.98788	-1.33927	.98176	-1.34486
81	.99837	-1.35691	-47.621	.00442	1.00000	-1.35543	.99674	-1.35840

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 18

BETA1	=-54.096	(BLADE INLET ANGLE.)
BETA2	=-49.033	(BLADE OUTLET ANGLE.)
YZERO	= .00129	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .02588	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .01129	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .6853	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.2813	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.7321

STAGGER ANGLE =-54.754

CAMBER ANGLE = -5.063

SECTION AREA = .03363

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .53528
YBAR = -.83422

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00638
IY = .00292
IXY = -.00420

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 34.724

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00899 (AT 34.724 WITH 'X' AXIS)
IPY = .00031 (AT 34.724 WITH 'Y' AXIS)

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00224	0.00000	-54.096	.00448	.00406	.00131	.00043	-.00131
2	.01531	-.01823	-54.646	.00563	.01760	-.01661	.01301	-.01986
3	.02837	-.03683	-55.148	.00678	.03116	-.03489	.02559	-.03877
4	.04144	-.05575	-55.605	.00795	.04472	-.05351	.03816	-.05800
5	.05451	-.07499	-56.019	.00913	.05829	-.07244	.05072	-.07754
6	.06757	-.09452	-56.393	.01032	.07187	-.09166	.06327	-.09737
7	.08064	-.11431	-56.730	.01152	.08545	-.11115	.07582	-.11747
8	.09373	-.13434	-57.030	.01272	.09904	-.13088	.08837	-.13780
9	.10677	-.15458	-57.295	.01392	.11263	-.15082	.10091	-.15835
10	.11984	-.17503	-57.527	.01512	.12622	-.17097	.11346	-.17909
11	.13290	-.19564	-57.727	.01632	.13980	-.19128	.12600	-.20000
12	.14597	-.21640	-57.896	.01752	.15339	-.21175	.13855	-.22106
13	.15904	-.23728	-58.035	.01871	.16697	-.23233	.15110	-.24224

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17219	-.25827	-58.143	.01989	.18055	-.25302	.16366	-.26352
15	.18517	-.27933	-58.223	.02106	.19412	-.27379	.17622	-.28488
16	.19824	-.30045	-58.274	.02222	.20768	-.29461	.18879	-.30629
17	.21130	-.32159	-58.297	.02336	.22124	-.31546	.20136	-.32773
18	.22353	-.34139	-58.299	.02441	.23391	-.33497	.21314	-.34780
19	.23575	-.36118	-58.288	.02545	.24658	-.35449	.22493	-.36787
20	.24798	-.38096	-58.264	.02647	.25924	-.37400	.23672	-.38792
21	.26021	-.40071	-58.227	.02748	.27189	-.39348	.24853	-.40795
22	.27243	-.42043	-58.177	.02846	.28452	-.41293	.26034	-.42794
23	.28466	-.44011	-58.114	.02942	.29715	-.43234	.27217	-.44788
24	.29688	-.45974	-58.038	.03036	.30976	-.45170	.28401	-.46777
25	.30911	-.47930	-57.949	.03128	.32237	-.47100	.29586	-.48760
26	.32134	-.49879	-57.846	.03217	.33495	-.49023	.30772	-.50735
27	.33356	-.51819	-57.729	.03303	.34753	-.50937	.31960	-.52701
28	.34579	-.53751	-57.598	.03388	.36009	-.52843	.33149	-.54658
29	.35802	-.55672	-57.453	.03469	.37264	-.54739	.34340	-.56605
30	.37024	-.57582	-57.293	.03547	.38517	-.56623	.35532	-.58540
31	.38247	-.59479	-57.118	.03623	.39768	-.58496	.36726	-.60463
32	.39469	-.61364	-56.928	.03696	.41018	-.60355	.37921	-.62372
33	.40692	-.63234	-56.722	.03765	.42266	-.62201	.39118	-.64267
34	.41846	-.64985	-56.523	.03828	.43442	-.63929	.40249	-.66041
35	.42999	-.66722	-56.331	.03888	.44617	-.65645	.41381	-.67800
36	.44152	-.68448	-56.146	.03946	.45791	-.67349	.42514	-.69547
37	.45336	-.70162	-55.968	.04000	.46963	-.69042	.43648	-.71281
38	.46459	-.71864	-55.798	.04052	.48135	-.70725	.44783	-.73003
39	.47613	-.73556	-55.635	.04101	.49305	-.72398	.45920	-.74713
40	.48766	-.75238	-55.480	.04147	.50475	-.74063	.47057	-.76413
41	.49919	-.76910	-55.334	.04191	.51643	-.75718	.48196	-.78102
42	.51073	-.78574	-55.196	.04231	.52810	-.77366	.49336	-.79781
43	.52226	-.80229	-55.066	.04268	.53976	-.79007	.50477	-.81451
44	.53380	-.81876	-54.945	.04303	.55141	-.80641	.51618	-.83112
45	.54533	-.83517	-54.833	.04335	.56305	-.82269	.52761	-.84765
46	.55687	-.85151	-54.730	.04363	.57468	-.83891	.53905	-.86411
47	.56840	-.86779	-54.637	.04389	.58630	-.85509	.55050	-.88049
48	.57993	-.88401	-54.552	.04412	.59793	-.87122	.56196	-.89681
49	.59147	-.90019	-54.477	.04431	.60950	-.88732	.57344	-.91307
50	.60341	-.91689	-54.399	.04448	.62149	-.90395	.58532	-.92984
51	.61535	-.93354	-54.309	.04462	.63347	-.92053	.59723	-.94656
52	.62729	-.95014	-54.207	.04472	.64543	-.93706	.60915	-.96321
53	.63923	-.96666	-54.094	.04479	.65737	-.95353	.62109	-.97979
54	.65117	-.98312	-53.970	.04482	.66929	-.96993	.63305	-.99630
55	.66311	-.99949	-53.833	.04482	.68120	-.98627	.64502	-1.01272
56	.67505	-1.01576	-53.683	.04477	.69309	-1.00252	.65701	-1.02904
57	.68699	-1.03198	-53.522	.04468	.70495	-1.01870	.66902	-1.04526
58	.69893	-1.04808	-53.347	.04454	.71679	-1.03478	.68106	-1.06137
59	.71087	-1.06407	-53.159	.04433	.72861	-1.05078	.69313	-1.07736
60	.72281	-1.07995	-52.958	.04405	.74039	-1.06668	.70523	-1.09322
61	.73475	-1.09571	-52.743	.04369	.75214	-1.08248	.71736	-1.10893
62	.74669	-1.11134	-52.514	.04325	.76385	-1.09818	.72953	-1.12450
63	.75863	-1.12684	-52.270	.04272	.77552	-1.11377	.74173	-1.13992
64	.77057	-1.14220	-52.012	.04210	.78716	-1.12925	.75398	-1.15516
65	.78251	-1.15742	-51.737	.04137	.79875	-1.14461	.76627	-1.17023
66	.79600	-1.17442	-51.427	.04042	.81180	-1.16182	.78020	-1.18703
67	.80948	-1.19125	-51.132	.03933	.82479	-1.17891	.79418	-1.20359
68	.82297	-1.20790	-50.854	.03808	.83774	-1.19588	.80821	-1.21992
69	.83646	-1.22439	-50.594	.03667	.85063	-1.21275	.82229	-1.23603

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.84995	-1.24073	-50.352	.03510	.86346	-1.22953	.83643	-1.25193
71	.86343	-1.25694	-50.128	.03336	.87623	-1.24625	.85063	-1.26763
72	.87692	-1.27333	-49.925	.03143	.88894	-1.26291	.86490	-1.28315
73	.89041	-1.28981	-49.741	.02931	.90159	-1.27954	.87923	-1.29848
74	.90393	-1.30489	-49.577	.02699	.91417	-1.29614	.89362	-1.31364
75	.91738	-1.32068	-49.434	.02445	.92667	-1.31273	.90809	-1.32864
76	.93087	-1.33640	-49.313	.02172	.93911	-1.32932	.92263	-1.34348
77	.94436	-1.35206	-49.213	.01876	.95146	-1.34593	.93726	-1.35819
78	.95784	-1.36767	-49.135	.01556	.96373	-1.36258	.95196	-1.37276
79	.97133	-1.38324	-49.078	.01213	.97591	-1.37927	.96675	-1.38721
80	.98482	-1.39879	-49.044	.00844	.98800	-1.39603	.98163	-1.40156
81	.99831	-1.41433	-49.033	.00449	1.00000	-1.41286	.99661	-1.41580

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 19

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BETA1      =-54.767     (BLADE INLET ANGLE.)
BETA2      =-50.454     (BLADE OUTLET ANGLE.)
YZERO      =  .00128    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .02550    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .00128    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .6900     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.1995     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.7825

STAGGER ANGLE  =-55.920

CAMBER ANGLE   = -4.312

SECTION AREA   = .05593

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

         XBAR =  .53760
         YBAR = -.83533

SECOND MOMENTS OF AREA ABOUT CENTROID

         IX   =  .00591
         IY   =  .00315
         IXY  = -.00458

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 33.553

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

         IPX  = .00995      (AT 33.553 WITH 'X' AXIS)
         IPY  = .00011      (AT 33.553 WITH 'Y' AXIS)
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POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00228	0.00000	-54.767	.00456	.00415	.00132	.00042	-.00132
2	.01544	-.01882	-55.322	.00571	.01778	-.01720	.01309	-.02045
3	.02859	-.03802	-55.833	.00687	.03143	-.03609	.02575	-.03995
4	.04175	-.05757	-56.294	.00804	.04509	-.05534	.03840	-.05983
5	.05491	-.07745	-56.717	.00923	.05876	-.07492	.05104	-.07998
6	.06835	-.09764	-57.103	.01042	.07243	-.09481	.06368	-.10047
7	.08121	-.11811	-57.446	.01162	.08611	-.11499	.07631	-.12124
8	.09436	-.13884	-57.757	.01282	.09979	-.13542	.08894	-.14226
9	.10752	-.15981	-58.035	.01403	.11347	-.15610	.10157	-.16353
10	.12067	-.19100	-58.283	.01524	.12716	-.17699	.11419	-.18500
11	.13383	-.21237	-58.494	.01645	.14084	-.19807	.12682	-.20667
12	.14698	-.22391	-58.679	.01766	.15452	-.21932	.13944	-.22850
13	.16014	-.24560	-58.833	.01885	.16820	-.24172	.15207	-.25048

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17329	-.26740	-58.960	.02095	.18188	-.26223	.16470	-.27257
15	.18645	-.28931	-59.063	.02123	.19555	-.28385	.17734	-.29476
16	.19960	-.31128	-59.132	.02243	.20921	-.30554	.18999	-.31703
17	.21276	-.33331	-59.177	.02356	.22287	-.32728	.20264	-.33935
18	.22512	-.35454	-59.199	.02463	.23569	-.34773	.21454	-.36034
19	.23747	-.37478	-59.208	.02568	.24851	-.36820	.22644	-.38135
20	.24983	-.39551	-59.202	.02672	.26131	-.38867	.23836	-.40235
21	.26219	-.41624	-59.181	.02774	.27411	-.40913	.25028	-.42335
22	.27455	-.43695	-59.147	.02875	.28689	-.42957	.26221	-.44432
23	.28691	-.45762	-59.097	.02973	.29967	-.44996	.27416	-.46525
24	.29927	-.47824	-59.034	.03069	.31243	-.47035	.28612	-.48613
25	.31163	-.49881	-58.955	.03162	.32518	-.49065	.29809	-.50696
26	.32399	-.51930	-58.862	.03253	.33791	-.51089	.31007	-.52771
27	.33635	-.53972	-58.753	.03342	.35064	-.53105	.32207	-.54838
28	.34871	-.56004	-58.629	.03427	.36334	-.55112	.33408	-.56896
29	.36107	-.58026	-58.489	.03510	.37603	-.57108	.34611	-.58943
30	.37343	-.60036	-58.333	.03591	.38871	-.59093	.35815	-.60978
31	.38579	-.62033	-58.160	.03668	.40137	-.61065	.37021	-.63000
32	.39815	-.64016	-57.973	.03742	.41401	-.63023	.38229	-.65008
33	.41051	-.65984	-57.763	.03813	.42664	-.64967	.39438	-.67001
34	.42199	-.67798	-57.566	.03876	.43835	-.66758	.40563	-.68837
35	.43348	-.69598	-57.377	.03937	.45006	-.68537	.41690	-.70663
36	.44496	-.71386	-57.197	.03995	.46175	-.70304	.42817	-.72468
37	.45645	-.73162	-57.025	.04050	.47343	-.72060	.43946	-.74264
38	.46793	-.74927	-56.863	.04102	.48510	-.73806	.45076	-.76048
39	.47941	-.76681	-56.739	.04151	.49677	-.75541	.46206	-.77820
40	.49090	-.78425	-56.565	.04198	.50842	-.77268	.47338	-.79581
41	.50239	-.80160	-56.431	.04242	.52006	-.78987	.48471	-.81332
42	.51387	-.81886	-56.307	.04283	.53168	-.80698	.49605	-.83074
43	.52535	-.83605	-56.193	.04321	.54330	-.82403	.50740	-.84807
44	.53684	-.85317	-56.089	.04356	.55491	-.84101	.51876	-.86532
45	.54832	-.87022	-55.996	.04389	.56651	-.85795	.53013	-.88249
46	.55980	-.88722	-55.914	.04418	.57810	-.87483	.54151	-.89960
47	.57129	-.90416	-55.842	.04445	.58968	-.89169	.55290	-.91664
48	.58277	-.92107	-55.781	.04468	.60125	-.90851	.56430	-.93363
49	.59426	-.93794	-55.732	.04489	.61280	-.92530	.57571	-.95058
50	.60612	-.95533	-55.680	.04506	.62473	-.94263	.58751	-.96803
51	.61739	-.97268	-55.615	.04521	.63665	-.95992	.59932	-.98545
52	.62984	-.98999	-55.537	.04532	.64852	-.97717	.61115	-1.00281
53	.64170	-1.00724	-55.445	.04540	.66039	-.99437	.62300	-1.02012
54	.65356	-1.02443	-55.349	.04544	.67225	-1.01151	.63487	-1.03735
55	.66542	-1.04155	-55.222	.04545	.68409	-1.02858	.64675	-1.05451
56	.67728	-1.05858	-55.089	.04542	.69590	-1.04559	.65866	-1.07158
57	.68914	-1.07553	-54.942	.04535	.70773	-1.06251	.67058	-1.08856
58	.70100	-1.09238	-54.781	.04522	.71947	-1.07935	.68253	-1.10542
59	.71286	-1.10913	-54.605	.04502	.73121	-1.09609	.69451	-1.12217
60	.72472	-1.12577	-54.413	.04476	.74292	-1.11274	.70652	-1.13879
61	.73658	-1.14228	-54.206	.04442	.75460	-1.12929	.71856	-1.15527
62	.74844	-1.15866	-53.983	.04403	.76623	-1.14572	.73065	-1.17159
63	.76030	-1.17490	-53.744	.04348	.77783	-1.16205	.74277	-1.18776
64	.77216	-1.19100	-53.467	.04286	.78939	-1.17825	.75494	-1.20375
65	.78402	-1.20694	-53.213	.04214	.80093	-1.19432	.76715	-1.21956
66	.79741	-1.22474	-52.909	.04127	.81384	-1.21232	.78098	-1.23717
67	.81083	-1.24235	-52.604	.04010	.82673	-1.23017	.79487	-1.25453
68	.82419	-1.25978	-52.324	.03885	.83956	-1.24790	.80881	-1.27165
69	.83758	-1.27703	-52.061	.03744	.85234	-1.26552	.82281	-1.28854

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85196	-1.29413	-51.816	.03585	.86506	-1.28305	.83687	-1.30521
71	.86435	-1.31108	-51.597	.03408	.87771	-1.30050	.85100	-1.32167
72	.87774	-1.32791	-51.382	.03213	.89029	-1.31788	.86519	-1.33793
73	.89113	-1.34461	-51.195	.02997	.90281	-1.33522	.87945	-1.35400
74	.90452	-1.36121	-51.028	.02761	.91525	-1.35253	.89379	-1.36989
75	.91791	-1.37771	-50.881	.02503	.92762	-1.36982	.90823	-1.38561
76	.93131	-1.39414	-50.755	.02224	.93991	-1.38711	.92269	-1.40117
77	.94463	-1.41050	-50.651	.01921	.95211	-1.40441	.93726	-1.41659
78	.95817	-1.42680	-50.569	.01593	.96423	-1.42174	.95192	-1.43186
79	.97146	-1.44307	-50.509	.01241	.97625	-1.43912	.96668	-1.44701
80	.98485	-1.45930	-50.473	.00862	.98818	-1.45656	.98153	-1.46205
81	.99824	-1.47552	-50.454	.00466	1.00000	-1.47417	.99648	-1.47697

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 20
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BETA1      =-55.463     (BLADE INLET ANGLE.)
BETA2      =-51.933     (BLADE OUTLET ANGLE.)
YZERO      =  .00127    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .02523    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .00127    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .6949     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.1145     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD = 1.8373

STAGGER ANGLE =-57.071

CAMBER ANGLE = -3.533

SECTION AREA = .05877

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .54020
YBAR = -.87518

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00794
IY = .00329
IXY = -.00533

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 32.377

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .01113 (AT 32.377 WITH 'X' AXIS)
IPY = .00031 (AT 32.377 WITH 'Y' AXIS)

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00233	0.00000	-55.463	.00465	.00424	.00132	.00041	-.00132
2	.01558	-.01947	-56.024	.00581	.01799	-.01785	.01318	-.02110
3	.02884	-.03934	-56.539	.00698	.03175	-.03742	.02593	-.04127
4	.04211	-.05959	-57.011	.00816	.04552	-.05737	.03868	-.06181
5	.05536	-.08019	-57.442	.00936	.05931	-.07767	.05142	-.08271
6	.06862	-.10112	-57.834	.01056	.07309	-.09830	.06415	-.10393
7	.08188	-.12235	-58.191	.01177	.08688	-.11925	.07688	-.12545
8	.09514	-.14386	-58.513	.01299	.10068	-.14047	.08960	-.14726
9	.10840	-.16564	-58.802	.01422	.11448	-.16195	.10232	-.16932
10	.12166	-.18765	-59.060	.01544	.12828	-.18368	.11504	-.19162
11	.13492	-.20987	-59.288	.01667	.14208	-.20561	.12776	-.21412
12	.14818	-.23228	-59.487	.01789	.15588	-.22774	.14047	-.23682
13	.16144	-.25486	-59.658	.01911	.16968	-.25003	.15319	-.25968

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17470	-.27758	-59.803	.02032	.18348	-.27247	.16592	-.28269
15	.18796	-.30042	-59.920	.02152	.19727	-.29503	.17865	-.30581
16	.20122	-.32336	-60.012	.02271	.21105	-.31768	.19138	-.32903
17	.21448	-.34637	-60.079	.02389	.22483	-.34041	.20412	-.35232
18	.22773	-.36814	-60.121	.02499	.23783	-.36192	.21616	-.37437
19	.23952	-.38995	-60.148	.02607	.25082	-.38346	.22821	-.39644
20	.25274	-.41177	-60.158	.02714	.26381	-.40512	.24027	-.41852
21	.26456	-.43359	-60.152	.02819	.27678	-.42658	.25234	-.44061
22	.27738	-.45541	-60.130	.02921	.28975	-.44813	.26442	-.46268
23	.28963	-.47719	-60.092	.03022	.30270	-.46966	.27651	-.48473
24	.30212	-.49894	-60.037	.03121	.31564	-.49115	.28861	-.50673
25	.31465	-.52063	-59.966	.03217	.32857	-.51258	.30072	-.52868
26	.32717	-.54225	-59.879	.03311	.34148	-.53394	.31285	-.55055
27	.33969	-.56379	-59.774	.03401	.35438	-.55522	.32499	-.57235
28	.35221	-.58523	-59.652	.03489	.36726	-.57641	.33715	-.59404
29	.36473	-.60655	-59.512	.03575	.38013	-.59748	.34933	-.61562
30	.37725	-.62775	-59.354	.03657	.39298	-.61843	.36152	-.63707
31	.38977	-.64882	-59.178	.03735	.40582	-.63924	.37373	-.65839
32	.40229	-.66972	-58.982	.03812	.41863	-.65990	.38596	-.67954
33	.41482	-.69046	-58.767	.03886	.43143	-.68039	.39820	-.70053
34	.42625	-.70924	-58.567	.03949	.44310	-.69835	.40940	-.71954
35	.43769	-.72789	-58.376	.04010	.45476	-.71737	.42061	-.73840
36	.44912	-.74639	-58.197	.04069	.46641	-.73567	.43184	-.75711
37	.46056	-.76470	-58.029	.04124	.47805	-.75386	.44307	-.77569
38	.47200	-.78304	-57.872	.04177	.48968	-.77194	.45431	-.79415
39	.48343	-.80120	-57.727	.04227	.50131	-.78992	.46556	-.81249
40	.49487	-.81927	-57.595	.04274	.51292	-.80781	.47683	-.83072
41	.50632	-.83724	-57.474	.04319	.52452	-.82563	.48810	-.84885
42	.51776	-.85514	-57.367	.04361	.53611	-.84338	.49938	-.86689
43	.52919	-.87296	-57.272	.04399	.54769	-.86107	.51068	-.88486
44	.54062	-.89073	-57.191	.04436	.55925	-.87871	.52198	-.90275
45	.55205	-.90845	-57.123	.04469	.57082	-.89632	.53329	-.92058
46	.56343	-.92612	-57.068	.04499	.58237	-.91359	.54461	-.93835
47	.57433	-.94376	-57.027	.04526	.59391	-.93145	.55594	-.95608
48	.58536	-.96138	-57.009	.04551	.60545	-.94899	.56728	-.97378
49	.59733	-.97899	-56.986	.04572	.61697	-.96653	.57863	-.99144
50	.60957	-.99710	-56.971	.04591	.62882	-.98459	.59033	-1.00961
51	.62134	-1.01520	-56.943	.04603	.64065	-1.00253	.60204	-1.02776
52	.63312	-1.03327	-56.894	.04615	.65246	-1.02065	.61377	-1.04588
53	.64489	-1.05130	-56.831	.04624	.66426	-1.03864	.62552	-1.06396
54	.65666	-1.06928	-56.753	.04633	.67603	-1.05650	.63728	-1.08198
55	.66843	-1.08721	-56.658	.04635	.68779	-1.07447	.64907	-1.09995
56	.68020	-1.10506	-56.547	.04633	.69953	-1.09229	.66087	-1.11783
57	.69197	-1.12284	-56.418	.04627	.71125	-1.11004	.67270	-1.13563
58	.70374	-1.14052	-56.273	.04616	.72294	-1.12770	.68455	-1.15333
59	.71551	-1.15810	-56.117	.04598	.73460	-1.14528	.69643	-1.17092
60	.72729	-1.17556	-55.929	.04573	.74623	-1.16275	.70835	-1.18837
61	.73906	-1.19290	-55.729	.04540	.75782	-1.18012	.72030	-1.20569
62	.75083	-1.21011	-55.510	.04499	.76937	-1.19737	.73229	-1.22285
63	.76260	-1.22717	-55.272	.04448	.78088	-1.21450	.74432	-1.23984
64	.77437	-1.24407	-55.013	.04387	.79234	-1.23149	.75640	-1.25665
65	.78614	-1.26080	-54.734	.04315	.80376	-1.24835	.76853	-1.27326
66	.79933	-1.27743	-54.414	.04220	.81655	-1.26715	.78223	-1.29171
67	.81265	-1.29785	-54.111	.04113	.82929	-1.28580	.79600	-1.30989
68	.82590	-1.31606	-53.825	.03984	.84198	-1.30431	.80982	-1.32782
69	.83915	-1.33410	-53.556	.03843	.85463	-1.32259	.82370	-1.34550

POINT NUMBER	M E A N L I N E D A T A X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85240	-1.35196	-53.305	.03679	.86715	-1.34097	.83765	-1.36295
71	.86565	-1.35966	-53.074	.03499	.87964	-1.35915	.85167	-1.38017
72	.87890	-1.37723	-52.862	.03299	.89205	-1.37727	.86575	-1.39719
73	.89216	-1.40467	-52.671	.03073	.90440	-1.39533	.87992	-1.41400
74	.90541	-1.42199	-52.501	.02837	.91666	-1.41335	.89415	-1.43062
75	.91866	-1.43921	-52.353	.02573	.92885	-1.43135	.90847	-1.44707
76	.93191	-1.45635	-52.226	.02286	.94095	-1.44935	.92288	-1.46335
77	.94516	-1.47342	-52.122	.01974	.95295	-1.46736	.93737	-1.47948
78	.95841	-1.49043	-52.040	.01637	.96487	-1.48539	.95196	-1.49546
79	.97167	-1.50739	-51.981	.01274	.97669	-1.50337	.96665	-1.51132
80	.98492	-1.52433	-51.946	.00884	.98640	-1.52161	.98144	-1.52705
81	.99817	-1.54125	-51.933	.00465	1.00000	-1.53982	.99634	-1.54269

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 21
****

BETA1	=-56.176	(BLADE INLET ANGLE.)
BETA2	=-53.599	(BLADE OUTLET ANGLE.)
YZERO	= .00125	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .02500	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00125	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .7000	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.0270	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.8993

STAGGER ANGLE =-58.277

CAMBER ANGLE = -2.667

SECTION AREA = .06228

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .54388
YBAR = -.91645

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00922
IY = .00339
IXY = -.00558

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 31.213

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .01263 (AT 31.213 WITH 'X' AXIS)
IPY = .00001 (AT 31.213 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00237	0.00000	-56.176	.00475	.00435	.00132	.00040	-.00132
2	.01576	-.02023	-56.822	.00592	.01824	-.01851	.01328	-.02185
3	.02915	-.04094	-57.409	.00711	.03214	-.03902	.02615	-.04285
4	.04253	-.06209	-57.939	.00831	.04605	-.05989	.03901	-.06430
5	.05592	-.08367	-58.418	.00953	.05998	-.08117	.05186	-.08617
6	.06930	-.10563	-58.849	.01077	.07391	-.10285	.06470	-.10842
7	.08269	-.12795	-59.235	.01201	.08785	-.12488	.07753	-.13102
8	.09608	-.15059	-59.579	.01326	.10179	-.14724	.09036	-.15395
9	.10946	-.17353	-59.882	.01451	.11574	-.16989	.10319	-.17717
10	.12285	-.19673	-60.147	.01577	.12968	-.19281	.11601	-.20066
11	.13623	-.22017	-60.375	.01703	.14363	-.21596	.12883	-.22438
12	.14962	-.24388	-60.569	.01828	.15758	-.23931	.14166	-.24829
13	.16301	-.26761	-60.728	.01953	.17152	-.26283	.15449	-.27238

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17639	-.29155	-60.854	.02078	.18546	-.28649	.16732	-.29661
15	.18978	-.31561	-60.949	.02201	.19940	-.31026	.18016	-.32095
16	.20316	-.33974	-61.011	.02323	.21332	-.33411	.19300	-.34537
17	.21655	-.36392	-61.043	.02444	.22724	-.35800	.20586	-.36983
18	.22926	-.38689	-61.052	.02557	.24045	-.38071	.21807	-.39308
19	.24197	-.40987	-61.048	.02668	.25364	-.40341	.23030	-.41633
20	.25468	-.43284	-61.033	.02778	.26683	-.42612	.24253	-.43957
21	.26739	-.45579	-61.006	.02885	.28001	-.44880	.25477	-.46278
22	.28011	-.47871	-60.967	.02991	.29318	-.47145	.26703	-.48597
23	.29281	-.50159	-60.916	.03094	.30633	-.49407	.27929	-.50911
24	.30552	-.52441	-60.852	.03195	.31947	-.51663	.29157	-.53219
25	.31823	-.54717	-60.776	.03293	.33260	-.53913	.30386	-.55521
26	.33094	-.56985	-60.687	.03389	.34572	-.56155	.31617	-.57814
27	.34365	-.59244	-60.585	.03482	.35882	-.58389	.32849	-.60099
28	.35636	-.61493	-60.471	.03573	.37191	-.60613	.34082	-.62373
29	.36908	-.63731	-60.342	.03660	.38498	-.62826	.35317	-.64637
30	.38179	-.65957	-60.201	.03745	.39803	-.65027	.36554	-.66888
31	.39450	-.68170	-60.045	.03826	.41107	-.67214	.37792	-.69125
32	.40721	-.70368	-59.875	.03904	.42409	-.69386	.39032	-.71347
33	.41992	-.72550	-59.690	.03979	.43709	-.71546	.40274	-.73554
34	.43131	-.74492	-59.522	.04043	.44873	-.73467	.41388	-.75517
35	.44271	-.76421	-59.363	.04105	.46036	-.75375	.42504	-.77467
36	.45409	-.78339	-59.214	.04164	.47197	-.77273	.43620	-.79404
37	.46548	-.80245	-59.074	.04223	.48358	-.79161	.44738	-.81329
38	.47687	-.82141	-58.945	.04274	.49518	-.81039	.45856	-.83244
39	.48826	-.84028	-58.826	.04325	.50676	-.82909	.46976	-.85148
40	.49965	-.85907	-58.717	.04373	.51833	-.84772	.48096	-.87042
41	.51104	-.87778	-58.619	.04418	.52990	-.86628	.49218	-.88928
42	.52243	-.89642	-58.532	.04461	.54145	-.88478	.50341	-.90806
43	.53382	-.91500	-58.456	.04501	.55300	-.90323	.51464	-.92678
44	.54521	-.93354	-58.392	.04538	.56453	-.92164	.52589	-.94543
45	.55660	-.95202	-58.338	.04572	.57606	-.94003	.53714	-.96402
46	.56799	-.97048	-58.297	.04603	.58757	-.95838	.54841	-.98257
47	.57938	-.98891	-58.266	.04631	.59908	-.97673	.55969	-1.00109
48	.59077	-1.00732	-58.248	.04657	.61057	-.99506	.57097	-1.01957
49	.60216	-1.02572	-58.241	.04679	.62206	-1.01341	.58227	-1.03803
50	.61383	-1.04456	-58.232	.04699	.63383	-1.03219	.59385	-1.05693
51	.62550	-1.06340	-58.210	.04716	.64554	-1.05098	.60545	-1.07582
52	.63716	-1.08221	-58.173	.04729	.65725	-1.06974	.61707	-1.09468
53	.64883	-1.10099	-58.122	.04739	.66895	-1.08847	.62871	-1.11350
54	.66050	-1.11972	-58.056	.04745	.68063	-1.10717	.64036	-1.13227
55	.67216	-1.13840	-57.976	.04746	.69229	-1.12582	.65203	-1.15099
56	.68383	-1.15702	-57.881	.04747	.70393	-1.14440	.66372	-1.16965
57	.69550	-1.17557	-57.771	.04743	.71556	-1.16292	.67544	-1.18822
58	.70716	-1.19403	-57.645	.04733	.72715	-1.18137	.68717	-1.20670
59	.71883	-1.21240	-57.504	.04717	.73872	-1.19973	.69894	-1.22507
60	.73050	-1.23066	-57.347	.04693	.75025	-1.21800	.71074	-1.24332
61	.74216	-1.24881	-57.174	.04662	.76175	-1.23617	.72257	-1.26144
62	.75383	-1.26683	-56.984	.04622	.77321	-1.25424	.73445	-1.27942
63	.76550	-1.28471	-56.776	.04572	.78462	-1.27219	.74637	-1.29724
64	.77716	-1.30245	-56.551	.04512	.79598	-1.29001	.75834	-1.31488
65	.78883	-1.32003	-56.307	.04440	.80730	-1.30771	.77036	-1.33234
66	.80191	-1.33954	-56.029	.04345	.81993	-1.32740	.78389	-1.35168
67	.81499	-1.35886	-55.762	.04235	.83249	-1.34694	.79748	-1.37077
68	.82807	-1.37798	-55.507	.04107	.84499	-1.36635	.81114	-1.38961
69	.84114	-1.39693	-55.265	.03961	.85742	-1.38564	.82487	-1.40821

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85422	-1.41571	-55.336	.03797	.86978	-1.40483	.83867	-1.42659
71	.86730	-1.43434	-54.820	.03612	.88207	-1.42393	.85254	-1.44475
72	.88038	-1.45282	-54.619	.03408	.89427	-1.44296	.86649	-1.46269
73	.89346	-1.47118	-54.432	.03181	.90640	-1.46192	.88052	-1.48043
74	.90654	-1.48941	-54.260	.02932	.91844	-1.48085	.89464	-1.49797
75	.91962	-1.50753	-54.104	.02659	.93039	-1.49973	.90885	-1.51533
76	.93270	-1.52555	-53.964	.02362	.94225	-1.51860	.92315	-1.53250
77	.94578	-1.54349	-53.839	.02043	.95401	-1.53747	.93754	-1.54951
78	.95885	-1.56135	-53.732	.01691	.96567	-1.55635	.95204	-1.56635
79	.97193	-1.57914	-53.640	.01314	.97723	-1.57525	.96664	-1.58304
80	.98501	-1.59688	-53.566	.00909	.98867	-1.59418	.98135	-1.59958
81	.99809	-1.61458	-53.509	.00475	1.00000	-1.61317	.99618	-1.61599

BLADE SURFACE GEOMETRY IN CARTESIAN COORDINATES AT SPECIFIED VALUES OF 'Z'

SECTION NUMBER 1 'Z' = 2.5000

SECTION PROPERTIES				
	SECTION AREA		=	5.8568E-01
	LOCATION OF CENTROID	XBAR	=	2.0291E-02
	RELATIVE TO STACK AXIS	YBAR	=	1.3603E-02
	SECOND MOMENTS OF AREA	IX	=	2.5256E-02
	ABOUT CENTROID	IY	=	2.4836E-01
		IXY	=	-1.1407E-02
	PRINCIPAL SECOND MOMENTS	IPX	=	2.4674E-02 (AT -2.92 DEGREES TO 'X' AXIS)
	OF AREA ABOUT CENTROID	IPY	=	2.4894E-01 (AT -2.92 DEGREES TO 'Y' AXIS)
	TORSIONAL CONSTANT		=	1.0203E-02

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.43639E+00	6.33176E-01	-1.45084E+00	6.05986E-01
2	-1.39618E+00	6.06838E-01	-1.41411E+00	5.72801E-01
3	-1.35589E+00	5.80751E-01	-1.37731E+00	5.39756E-01
4	-1.31550E+00	5.54808E-01	-1.34040E+00	5.06795E-01
5	-1.27510E+00	5.29000E-01	-1.30339E+00	4.73919E-01
6	-1.23440E+00	5.03292E-01	-1.26624E+00	4.41069E-01
7	-1.19369E+00	4.77633E-01	-1.22896E+00	4.08239E-01
8	-1.15288E+00	4.52074E-01	-1.19152E+00	3.75413E-01
9	-1.11198E+00	4.26587E-01	-1.15391E+00	3.42662E-01
10	-1.07100E+00	4.01163E-01	-1.11613E+00	3.09956E-01
11	-1.02998E+00	3.75920E-01	-1.07814E+00	2.77321E-01
12	-9.88922E-01	3.50859E-01	-1.03996E+00	2.44794E-01
13	-9.47867E-01	3.25971E-01	-1.00156E+00	2.12561E-01
14	-9.06850E-01	3.01452E-01	-9.62930E-01	1.80512E-01
15	-8.65904E-01	2.77379E-01	-9.24061E-01	1.48712E-01
16	-8.25072E-01	2.53782E-01	-8.84941E-01	1.17475E-01
17	-7.84398E-01	2.30726E-01	-8.45554E-01	8.67772E-02
18	-7.49577E-01	2.11685E-01	-8.11339E-01	6.07192E-02
19	-7.15064E-01	1.93410E-01	-7.77174E-01	3.53477E-02
20	-6.80867E-01	1.75843E-01	-7.43062E-01	1.08250E-02
21	-6.46988E-01	1.58898E-01	-7.09006E-01	-1.28371E-02
22	-6.13434E-01	1.42725E-01	-6.75007E-01	-3.58378E-02
23	-5.80198E-01	1.27366E-01	-6.41077E-01	-5.81747E-02
24	-5.47284E-01	1.12727E-01	-6.07220E-01	-7.95938E-02
25	-5.14690E-01	9.88267E-02	-5.73441E-01	-1.00138E-01
26	-4.82416E-01	8.56370E-02	-5.39748E-01	-1.19833E-01
27	-4.50457E-01	7.32275E-02	-5.06146E-01	-1.38747E-01
28	-4.18897E-01	6.15315E-02	-4.72646E-01	-1.56837E-01
29	-3.87464E-01	5.05329E-02	-4.39254E-01	-1.73997E-01
30	-3.56420E-01	4.02423E-02	-4.05980E-01	-1.90319E-01
31	-3.25668E-01	3.08210E-02	-3.72833E-01	-2.05771E-01
32	-2.95197E-01	2.19482E-02	-3.39826E-01	-2.20311E-01
33	-2.65033E-01	1.36692E-02	-3.06964E-01	-2.33879E-01
34	-2.34234E-01	5.62320E-03	-2.73434E-01	-2.47168E-01

POINT NO	XS	YS	XP	YP
35	-2.03588E-01	-1.69691E-03	-2.40009E-01	-2.59636E-01
36	-1.73153E-01	-8.23010E-03	-2.06698E-01	-2.71176E-01
37	-1.42895E-01	-1.44099E-02	-1.73511E-01	-2.81670E-01
38	-1.12815E-01	-2.00272E-02	-1.40454E-01	-2.91298E-01
39	-8.29120E-02	-2.50521E-02	-1.07537E-01	-3.00198E-01
40	-5.31839E-02	-2.94111E-02	-7.47684E-02	-3.08243E-01
41	-2.36307E-02	-3.29182E-02	-4.21563E-02	-3.15311E-01
42	5.74735E-03	-3.61523E-02	-9.70873E-03	-3.21239E-01
43	3.49513E-02	-3.89152E-02	2.25668E-02	-3.26292E-01
44	6.39790E-02	-4.10541E-02	5.46622E-02	-3.30575E-01
45	9.28312E-02	-4.25437E-02	8.65683E-02	-3.33939E-01
46	1.21508E-01	-4.31684E-02	1.18276E-01	-3.36246E-01
47	1.50009E-01	-4.33574E-02	1.49779E-01	-3.37330E-01
48	1.78333E-01	-4.31147E-02	1.81067E-01	-3.37512E-01
49	2.06477E-01	-4.22010E-02	2.12134E-01	-3.36857E-01
50	2.33509E-01	-4.02949E-02	2.42086E-01	-3.34887E-01
51	2.60245E-01	-3.73845E-02	2.71803E-01	-3.31772E-01
52	2.86680E-01	-3.38939E-02	3.01256E-01	-3.27205E-01
53	3.12810E-01	-2.99724E-02	3.30418E-01	-3.21695E-01
54	3.38629E-01	-2.54154E-02	3.59256E-01	-3.15307E-01
55	3.64128E-01	-1.99778E-02	3.87736E-01	-3.07651E-01
56	3.89298E-01	-1.33934E-02	4.15820E-01	-2.98543E-01
57	4.14130E-01	-5.43468E-03	4.43468E-01	-2.87450E-01
58	4.38618E-01	2.31115E-03	4.70642E-01	-2.75783E-01
59	4.62747E-01	1.08581E-02	4.97298E-01	-2.63133E-01
60	4.86502E-01	2.02848E-02	5.23388E-01	-2.49123E-01
61	5.09860E-01	3.16314E-02	5.48858E-01	-2.33095E-01
62	5.32805E-01	4.42979E-02	5.73655E-01	-2.14642E-01
63	5.55326E-01	5.63283E-02	5.97743E-01	-1.96381E-01
64	5.77390E-01	6.92119E-02	6.21059E-01	-1.77002E-01
65	5.98964E-01	8.30527E-02	6.43546E-01	-1.56248E-01
66	6.33859E-01	1.01290E-01	6.80325E-01	-1.28742E-01
67	6.68937E-01	1.23909E-01	7.16955E-01	-9.90842E-02
68	7.04282E-01	1.40823E-01	7.53498E-01	-6.82216E-02
69	7.39960E-01	1.63426E-01	7.90004E-01	-3.38110E-02
70	7.76049E-01	1.90839E-01	8.26530E-01	6.71685E-03
71	8.12681E-01	2.19151E-01	8.63204E-01	4.74639E-02
72	8.49965E-01	2.49190E-01	9.00095E-01	9.16709E-02
73	8.88315E-01	2.82662E-01	9.37301E-01	1.40210E-01
74	9.26960E-01	3.21022E-01	9.74937E-01	1.94236E-01
75	9.66985E-01	3.61100E-01	1.01314E+00	2.49683E-01
76	1.00824E+00	4.04096E-01	1.05203E+00	3.09413E-01
77	1.05091E+00	4.51122E-01	1.09175E+00	3.73775E-01
78	1.09519E+00	5.02850E-01	1.13247E+00	4.42531E-01
79	1.14131E+00	5.57525E-01	1.17433E+00	5.14448E-01
80	1.18951E+00	6.16169E-01	1.21750E+00	5.90684E-01
81	1.24034E+00	6.79330E-01	1.26215E+00	6.71369E-01

POINT NO	XSEMI	YSEMI
1	-1.45084E+00	6.05986E-01
2	-1.45198E+00	6.06986E-01
3	-1.45302E+00	6.08122E-01
4	-1.45396E+00	6.09382E-01
5	-1.45479E+00	6.10753E-01
6	-1.45549E+00	6.12219E-01
7	-1.45636E+00	6.13764E-01

POINT NO	XSEMI	YSEMI
8	-1.45650E+00	6.15372E-01
9	-1.45679E+00	6.17025E-01
10	-1.45694E+00	6.18704E-01
11	-1.45695E+00	6.20393E-01
12	-1.45681E+00	6.22072E-01
13	-1.45653E+00	6.23724E-01
14	-1.45610E+00	6.25330E-01
15	-1.45554E+00	6.26873E-01
16	-1.45485E+00	6.28337E-01
17	-1.45404E+00	6.29705E-01
18	-1.45311E+00	6.30963E-01
19	-1.45208E+00	6.32097E-01
20	-1.45096E+00	6.33095E-01
21	-1.44975E+00	6.33946E-01
22	-1.44848E+00	6.34640E-01
23	-1.44716E+00	6.35170E-01
24	-1.44579E+00	6.35530E-01
25	-1.44440E+00	6.35715E-01
26	-1.44300E+00	6.35724E-01
27	-1.44161E+00	6.35556E-01
28	-1.44024E+00	6.35213E-01
29	-1.43890E+00	6.34698E-01
30	-1.43761E+00	6.34017E-01
31	-1.43639E+00	6.33176E-01

SECTION NUMBER 2 'Z' = 3.0000
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SECTION PROPERTIES

SECTION AREA		=	5.1729E-01
LOCATION OF CENTROID	XBAR	=	2.9008E-02
RELATIVE TO STACK AXIS	YBAR	=	2.7906E-03
SECOND MOMENTS OF AREA	IX	=	2.3097E-02
ABOUT CENTROID	IY	=	2.2744E-01
	IXY	=	-3.7173E-02
PRINCIPAL SECOND MOMENTS	IPX	=	1.6545E-02 (AT -10.00 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	=	2.3399E-01 (AT -10.00 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	6.9939E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.45279E+00	7.47523E-01	-1.46520E+00	7.28663E-01
2	-1.41270E+00	7.17303E-01	-1.42873E+00	6.92452E-01
3	-1.37269E+00	6.87699E-01	-1.39222E+00	6.56819E-01
4	-1.33275E+00	6.58596E-01	-1.35566E+00	6.21680E-01
5	-1.29286E+00	6.29909E-01	-1.31904E+00	5.86987E-01
6	-1.25313E+00	6.01688E-01	-1.28235E+00	5.52730E-01
7	-1.21322E+00	5.73878E-01	-1.24558E+00	5.18810E-01
8	-1.17343E+00	5.46395E-01	-1.20873E+00	4.85270E-01
9	-1.13363E+00	5.19265E-01	-1.17178E+00	4.52017E-01

POINT NO	XS	YS	XP	YP
10	-1.09392E+00	4.92452E-01	-1.13474E+00	4.19049E-01
11	-1.05337E+00	4.65890E-01	-1.09759E+00	3.86331E-01
12	-1.01410E+00	4.39624E-01	-1.06032E+00	3.53798E-01
13	-9.74182E-01	4.13675E-01	-1.02292E+00	3.21505E-01
14	-9.34241E-01	3.88009E-01	-9.85360E-01	2.89500E-01
15	-8.94290E-01	3.62703E-01	-9.47623E-01	2.57751E-01
16	-8.54347E-01	3.37830E-01	-9.09692E-01	2.26323E-01
17	-8.14438E-01	3.13388E-01	-8.71549E-01	1.95358E-01
18	-7.78155E-01	2.91583E-01	-8.36531E-01	1.67479E-01
19	-7.42115E-01	2.73383E-01	-8.01522E-01	1.40138E-01
20	-7.06327E-01	2.49803E-01	-7.66525E-01	1.13423E-01
21	-6.70796E-01	2.29826E-01	-7.31543E-01	8.73933E-02
22	-6.35531E-01	2.10470E-01	-6.96579E-01	6.20238E-02
23	-6.00535E-01	1.91797E-01	-6.61637E-01	3.72893E-02
24	-5.65813E-01	1.73805E-01	-6.26722E-01	1.32703E-02
25	-5.31367E-01	1.56509E-01	-5.91840E-01	-9.99239E-03
26	-4.97199E-01	1.39882E-01	-5.56996E-01	-3.24746E-02
27	-4.63311E-01	1.23952E-01	-5.22194E-01	-5.41916E-02
28	-4.29703E-01	1.08729E-01	-4.87444E-01	-7.51570E-02
29	-3.96374E-01	9.42154E-02	-4.52750E-01	-9.53032E-02
30	-3.63321E-01	8.04200E-02	-4.18122E-01	-1.14628E-01
31	-3.30543E-01	6.73775E-02	-3.83567E-01	-1.33039E-01
32	-2.98034E-01	5.49742E-02	-3.49094E-01	-1.50706E-01
33	-2.65791E-01	4.32457E-02	-3.14711E-01	-1.67444E-01
34	-2.33587E-01	3.23936E-02	-2.80293E-01	-1.83463E-01
35	-2.01542E-01	2.16291E-02	-2.45954E-01	-1.98650E-01
36	-1.69654E-01	1.18464E-02	-2.11705E-01	-2.12957E-01
37	-1.37921E-01	2.53391E-03	-1.77552E-01	-2.26353E-01
38	-1.06341E-01	-6.20523E-03	-1.43505E-01	-2.38947E-01
39	-7.49133E-02	-1.43672E-02	-1.09571E-01	-2.50790E-01
40	-4.36357E-02	-2.19239E-02	-7.57592E-02	-2.61819E-01
41	-1.25080E-02	-2.87948E-02	-4.20764E-02	-2.71976E-01
42	1.84703E-02	-3.53023E-02	-8.53073E-03	-2.81190E-01
43	4.92989E-02	-4.13367E-02	2.48707E-02	-2.89612E-01
44	7.99777E-02	-4.68188E-02	5.81203E-02	-2.97293E-01
45	1.10506E-01	-5.17422E-02	9.12103E-02	-3.04146E-01
46	1.40885E-01	-5.59910E-02	1.24133E-01	-3.10102E-01
47	1.71113E-01	-5.98224E-02	1.56880E-01	-3.15071E-01
48	2.01189E-01	-6.32389E-02	1.89446E-01	-3.19247E-01
49	2.31111E-01	-6.60998E-02	2.21823E-01	-3.22663E-01
50	2.60316E-01	-6.82077E-02	2.53524E-01	-3.25041E-01
51	2.89240E-01	-6.95293E-02	2.85852E-01	-3.26460E-01
52	3.17882E-01	-7.03131E-02	3.16387E-01	-3.26713E-01
53	3.46240E-01	-7.06362E-02	3.47504E-01	-3.26097E-01
54	3.74309E-01	-7.03511E-02	3.78380E-01	-3.24627E-01
55	4.02086E-01	-6.92882E-02	4.08986E-01	-3.22034E-01
56	4.29564E-01	-6.70654E-02	4.39293E-01	-3.18182E-01
57	4.56737E-01	-6.41123E-02	4.69268E-01	-3.12709E-01
58	4.83694E-01	-6.08628E-02	4.98879E-01	-3.06514E-01
59	5.10153E-01	-5.68311E-02	5.28091E-01	-2.99312E-01
60	5.36375E-01	-5.19525E-02	5.56863E-01	-2.90830E-01
61	5.62255E-01	-4.55207E-02	5.85153E-01	-2.80616E-01
62	5.87782E-01	-3.79190E-02	6.12914E-01	-2.68378E-01
63	6.12949E-01	-3.04743E-02	6.40114E-01	-2.55869E-01
64	6.37733E-01	-2.21535E-02	6.66701E-01	-2.42184E-01
65	6.62118E-01	-1.28758E-02	6.92625E-01	-2.27134E-01
66	6.96211E-01	-2.42985E-04	7.28923E-01	-2.06916E-01

POINT NO	XS	YS	XP	YP
67	7.30480E-01	1.36987E-02	7.65109E-01	-1.84711E-01
68	7.64977E-01	2.81999E-02	8.01223E-01	-1.61160E-01
69	7.99752E-01	4.49627E-02	8.37296E-01	-1.34597E-01
70	8.34866E-01	6.55017E-02	8.73367E-01	-1.03195E-01
71	8.70418E-01	8.70507E-02	9.09526E-01	-7.11192E-02
72	9.06490E-01	1.10228E-01	9.45822E-01	-3.60381E-02
73	9.43171E-01	1.36283E-01	9.82327E-01	2.70774E-03
74	9.80564E-01	1.66276E-01	1.01913E+00	4.59493E-02
75	1.01881E+00	1.97929E-01	1.05632E+00	9.07751E-02
76	1.05813E+00	2.32154E-01	1.09401E+00	1.39297E-01
77	1.09837E+00	2.69792E-01	1.13230E+00	1.91738E-01
78	1.13999E+00	3.11337E-01	1.17131E+00	2.48061E-01
79	1.18338E+00	3.55530E-01	1.21117E+00	3.07255E-01
80	1.22781E+00	4.03173E-01	1.25201E+00	3.70251E-01
81	1.27441E+00	4.54719E-01	1.29397E+00	4.37194E-01

POINT NO	XSEMI	YSEMI
1	-1.46520E+00	7.28663E-01
2	-1.46613E+00	7.29474E-01
3	-1.46678E+00	7.30378E-01
4	-1.46744E+00	7.31366E-01
5	-1.46811E+00	7.32427E-01
6	-1.46849E+00	7.33549E-01
7	-1.46886E+00	7.34720E-01
8	-1.46912E+00	7.35928E-01
9	-1.46927E+00	7.37159E-01
10	-1.46931E+00	7.38399E-01
11	-1.46923E+00	7.39636E-01
12	-1.46904E+00	7.40856E-01
13	-1.46875E+00	7.42045E-01
14	-1.46834E+00	7.43191E-01
15	-1.46784E+00	7.44282E-01
16	-1.46724E+00	7.45305E-01
17	-1.46654E+00	7.46249E-01
18	-1.46577E+00	7.47104E-01
19	-1.46492E+00	7.47861E-01
20	-1.46401E+00	7.48511E-01
21	-1.46304E+00	7.49047E-01
22	-1.46203E+00	7.49464E-01
23	-1.46098E+00	7.49757E-01
24	-1.45991E+00	7.49922E-01
25	-1.45883E+00	7.49958E-01
26	-1.45776E+00	7.49863E-01
27	-1.45669E+00	7.49640E-01
28	-1.45565E+00	7.49290E-01
29	-1.45465E+00	7.48816E-01
30	-1.45369E+00	7.48225E-01
31	-1.45279E+00	7.47523E-01

SECTION NUMBER 3 'Z' = 3.5000
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SECTION PROPERTIES	SECTION AREA		= 4.6328E-01
	LOCATION OF CENTROID	XBAR	= 2.4039E-02
	RELATIVE TO STACK AXIS	YBAR	= 4.4525E-04
	SECOND MOMENTS OF AREA	IX	= 2.8468E-02
	ABOUT CENTROID	IY	= 2.1601E-01
		IXY	= -6.0195E-02
	PRINCIPAL SECOND MOMENTS	IPX	= 1.0810E-02 (AT -16.35 DEGREES TO 'X' AXIS)
	OF AREA ABOUT CENTROID	IPY	= 2.3367E-01 (AT -16.35 DEGREES TO 'Y' AXIS)
	TORSIONAL CONSTANT		= 4.7219E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.47862E+00	8.75928E-01	-1.48876E+00	8.62572E-01
2	-1.43840E+00	8.42611E-01	-1.45238E+00	8.23967E-01
3	-1.39829E+00	8.09637E-01	-1.41601E+00	7.85694E-01
4	-1.35827E+00	7.77020E-01	-1.37966E+00	7.47712E-01
5	-1.31834E+00	7.44719E-01	-1.34330E+00	7.10031E-01
6	-1.27851E+00	7.12738E-01	-1.30693E+00	6.72651E-01
7	-1.23873E+00	6.81192E-01	-1.27052E+00	6.35625E-01
8	-1.19905E+00	6.51125E-01	-1.23408E+00	5.99026E-01
9	-1.15943E+00	6.19529E-01	-1.19758E+00	5.62888E-01
10	-1.11958E+00	5.89443E-01	-1.16102E+00	5.27219E-01
11	-1.08039E+00	5.59943E-01	-1.12438E+00	4.92067E-01
12	-1.04096E+00	5.30986E-01	-1.08765E+00	4.57491E-01
13	-1.00157E+00	5.02600E-01	-1.05081E+00	4.23503E-01
14	-9.62235E-01	4.74807E-01	-1.01385E+00	3.90060E-01
15	-9.22933E-01	4.47611E-01	-9.76768E-01	3.57297E-01
16	-8.83663E-01	4.20940E-01	-9.39538E-01	3.25190E-01
17	-8.44418E-01	3.94807E-01	-9.02151E-01	2.93695E-01
18	-8.05552E-01	3.71089E-01	-8.65808E-01	2.63764E-01
19	-7.689[illegible]8E-01	3.45987E-01	-8.29481E-01	2.34550E-01
20	-7.31489E-01	3.22434E-01	-7.93168E-01	2.06072E-01
21	-6.94297E-01	2.99477E-01	-7.56865E-01	1.78270E-01
22	-6.57334E-01	2.77138E-01	-7.20575E-01	1.51123E-01
23	-6.206[illegible]2E-01	2.55347E-01	-6.84296E-01	1.24661E-01
24	-5.84134E-01	2.34161E-01	-6.48029E-01	9.88795E-02
25	-5.47844E-01	2.13598E-01	-6.11773E-01	7.37957E-02
26	-5.11822E-01	1.93663E-01	-5.75532E-01	4.93722E-02
27	-4.76943E-01	1.74356E-01	-5.39309E-01	2.56667E-02
28	-4.405[illegible]9E-01	1.55701E-01	-5.03107E-01	2.64294E-03
29	-4.05222E-01	1.37734E-01	-4.66931E-01	-1.96021E-02
30	-3.70184E-01	1.20482E-01	-4.30787E-01	-4.12967E-02
31	-3.35396E-01	1.03869E-01	-3.94683E-01	-6.21606E-02
32	-3.00859E-01	8.79629E-02	-3.58627E-01	-8.22947E-02
33	-2.66575E-01	7.27997E-02	-3.22629E-01	-1.01762E-01
34	-2.32967E-01	5.85522E-02	-2.87252E-01	-1.20210E-01
35	-1.99495E-01	4.49505E-02	-2.51952E-01	-1.37893E-01

POINT NO	XS	YS	XP	YP
36	-1.66156E-01	3.19221E-02	-2.16733E-01	-1.54834E-01
37	-1.32947E-01	1.94777E-02	-1.81600E-01	-1.71064E-01
38	-9.95673E-02	7.61674E-03	-1.46557E-01	-1.86598E-01
39	-6.69145E-02	-3.89227E-03	-1.11606E-01	-2.01382E-01
40	-3.40875E-02	-1.44368E-02	-7.67500E-02	-2.15395E-01
41	-1.38537E-03	-2.49714E-02	-4.19966E-02	-2.28642E-01
42	3.11926E-02	-3.49524E-02	-7.35274E-03	-2.41140E-01
43	6.36456E-02	-4.37581E-02	2.71746E-02	-2.52932E-01
44	9.59764E-02	-5.25835E-02	6.15785E-02	-2.64010E-01
45	1.28192E-01	-6.03408E-02	9.58523E-02	-2.74354E-01
46	1.60262E-01	-6.88136E-02	1.29989E-01	-2.83958E-01
47	1.92218E-01	-7.62874E-02	1.63982E-01	-2.92813E-01
48	2.24046E-01	-8.33631E-02	1.97825E-01	-3.00382E-01
49	2.55746E-01	-8.99970E-02	2.31512E-01	-3.08468E-01
50	2.87123E-01	-9.61205E-02	2.64962E-01	-3.15194E-01
51	3.18236E-01	-1.01674E-01	2.98302E-01	-3.21147E-01
52	3.49385E-01	-1.06732E-01	3.31517E-01	-3.26220E-01
53	3.79670E-01	-1.11300E-01	3.64590E-01	-3.30498E-01
54	4.09990E-01	-1.13287E-01	3.97503E-01	-3.33946E-01
55	4.39044E-01	-1.16599E-01	4.30236E-01	-3.36417E-01
56	4.69829E-01	-1.21041E-01	4.62766E-01	-3.37821E-01
57	4.99345E-01	-1.22790E-01	4.95068E-01	-3.37969E-01
58	5.28589E-01	-1.24037E-01	5.27117E-01	-3.37248E-01
59	5.57558E-01	-1.24520E-01	5.58884E-01	-3.35490E-01
60	5.85248E-01	-1.24198E-01	5.90339E-01	-3.32536E-01
61	6.14650E-01	-1.22673E-01	6.21448E-01	-3.28137E-01
62	6.42759E-01	-1.20136E-01	6.52173E-01	-3.22113E-01
63	6.70572E-01	-1.17277E-01	6.82485E-01	-3.15357E-01
64	6.98076E-01	-1.13519E-01	7.12343E-01	-3.07366E-01
65	7.25257E-01	-1.03804E-01	7.41704E-01	-2.98021E-01
66	7.58564E-01	-1.01776E-01	7.77521E-01	-2.85091E-01
67	7.92022E-01	-9.35117E-02	8.13264E-01	-2.70338E-01
68	8.25671E-01	-8.44234E-02	8.48948E-01	-2.54098E-01
69	8.59545E-01	-7.35802E-02	8.84589E-01	-2.35384E-01
70	8.93634E-01	-5.98353E-02	9.20205E-01	-2.13107E-01
71	9.28154E-01	-4.53496E-02	9.55849E-01	-1.89708E-01
72	9.63314E-01	-2.87327E-02	9.91550E-01	-1.63747E-01
73	9.98328E-01	-1.03954E-02	1.02735E+00	-1.34795E-01
74	1.03417E+00	1.15299E-02	1.06332E+00	-1.02337E-01
75	1.07764E+00	3.47583E-02	1.09950E+00	-6.81327E-02
76	1.10783E+00	6.02128E-02	1.13599E+00	-3.08189E-02
77	1.14554E+00	8.84613E-02	1.17284E+00	9.80014E-03
78	1.18456E+00	1.19825E-01	1.21015E+00	5.35897E-02
79	1.22484E+00	1.53535E-01	1.24801E+00	1.00862E-01
80	1.26612E+00	1.91176E-01	1.28652E+00	1.49819E-01
81	1.31878E+00	2.33109E-01	1.32578E+00	2.03019E-01

POINT NO	XSEMI	YSEMI
1	-1.48876E+00	8.62572E-01
2	-1.48938E+00	8.63212E-01
3	-1.48933E+00	8.63919E-01
4	-1.49041E+00	8.64663E-01
5	-1.49081E+00	8.65497E-01
6	-1.49114E+00	8.66352E-01
7	-1.49139E+00	8.67238E-01
8	-1.49155E+00	8.68146E-01

POINT NO	XSEMI	YSEMI
9	-1.49163E+00	8.69966E-01
10	-1.49162E+00	8.69988E-01
11	-1.49153E+00	8.70901E-01
12	-1.49134E+00	8.71796E-01
13	-1.49128E+00	8.72664E-01
14	-1.49073E+00	8.73493E-01
15	-1.49031E+00	8.74277E-01
16	-1.48991E+00	8.75016E-01
17	-1.48925E+00	8.75671E-01
18	-1.48863E+00	8.76267E-01
19	-1.48795E+00	8.76786E-01
20	-1.48723E+00	8.77222E-01
21	-1.48646E+00	8.77572E-01
22	-1.48567E+00	8.77830E-01
23	-1.48486E+00	8.77995E-01
24	-1.48413E+00	8.78064E-01
25	-1.48320E+00	8.78036E-01
26	-1.48237E+00	8.77912E-01
27	-1.48156E+00	8.77693E-01
28	-1.48077E+00	8.77381E-01
29	-1.48001E+00	8.76980E-01
30	-1.47929E+00	8.76494E-01
31	-1.47862E+00	8.75928E-01

SECTION NUMBER 4 'Z' = 4.0000
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SECTION PROPERTIES

SECTION AREA		=	4.3507E-01
LOCATION OF CENTROID	XBAR	=	1.5621E-03
RELATIVE TO STACK AXIS	YBAR	=	4.3085E-03
SECOND MOMENTS OF AREA	IX	=	4.0225E-02
ABOUT CENTROID	IY	=	2.1184E-01
	IXY	=	-8.1977E-02
PRINCIPAL SECOND MOMENTS	IPX	=	7.3590E-03 (AT -21.85 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	=	2.4470E-01 (AT -21.85 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	3.5964E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.50934E+00	1.01434E+00	-1.51838E+00	1.00362E+00
2	-1.46943E+00	9.77786E-01	-1.48227E+00	9.62389E-01
3	-1.42947E+00	9.41561E-01	-1.44613E+00	9.21478E-01
4	-1.38957E+00	9.05695E-01	-1.40996E+00	8.80892E-01
5	-1.34971E+00	8.70221E-01	-1.37377E+00	8.40669E-01
6	-1.30959E+00	8.35134E-01	-1.33754E+00	8.00875E-01
7	-1.27213E+00	8.01458E-01	-1.30128E+00	7.61392E-01
8	-1.23342E+00	7.66275E-01	-1.26499E+00	7.22394E-01
9	-1.19179E+00	7.32599E-01	-1.22867E+00	6.83082E-01
10	-1.15122E+00	6.99646E-01	-1.19231E+00	6.45879E-01

POINT NO	XS	YS	XP	YP
11	-1.11175E+00	6.66795E-01	-1.15591E+00	5.08410E-01
12	-1.07236E+00	6.34728E-01	-1.11947E+00	5.71468E-01
13	-1.03316E+00	6.03271E-01	-1.08297E+00	5.35090E-01
14	-9.93857E-01	5.72454E-01	-1.04642E+00	4.99338E-01
15	-9.54757E-01	5.42251E-01	-1.00980E+00	4.64251E-01
16	-9.15754E-01	5.12689E-01	-9.73108E-01	4.29821E-01
17	-8.76843E-01	4.83801E-01	-9.36330E-01	3.96026E-01
18	-8.37618E-01	4.55286E-01	-8.99034E-01	3.62536E-01
19	-7.98543E-01	4.27491E-01	-8.61713E-01	3.29833E-01
20	-7.59648E-01	4.00389E-01	-8.24368E-01	2.97898E-01
21	-7.20923E-01	3.74010E-01	-7.86997E-01	2.66798E-01
22	-6.82368E-01	3.48326E-01	-7.49605E-01	2.36258E-01
23	-6.43982E-01	3.23280E-01	-7.12193E-01	2.06583E-01
24	-6.05764E-01	2.98885E-01	-6.74761E-01	1.77629E-01
25	-5.67714E-01	2.75136E-01	-6.37315E-01	1.49363E-01
26	-5.29831E-01	2.52013E-01	-5.99856E-01	1.21804E-01
27	-4.92115E-01	2.29407E-01	-5.62388E-01	9.49485E-02
28	-4.54571E-01	2.07364E-01	-5.24912E-01	6.87793E-02
29	-4.17293E-01	1.85901E-01	-4.87432E-01	4.31932E-02
30	-3.80319E-01	1.65021E-01	-4.49950E-01	1.82595E-02
31	-3.43027E-01	1.44695E-01	-4.12464E-01	-5.99270E-03
32	-3.06237E-01	1.24934E-01	-3.74973E-01	-2.95386E-02
33	-2.69658E-01	1.05781E-01	-3.37478E-01	-5.24007E-02
34	-2.34314E-01	8.77737E-02	-3.01084E-01	-7.39084E-02
35	-1.99119E-01	7.03458E-02	-2.64690E-01	-9.47020E-02
36	-1.64073E-01	5.34905E-02	-2.28300E-01	-1.14754E-01
37	-1.29171E-01	3.71775E-02	-1.91924E-01	-1.34037E-01
38	-9.44108E-02	2.14304E-02	-1.55568E-01	-1.52550E-01
39	-5.97868E-02	6.27313E-03	-1.19243E-01	-1.70311E-01
40	-2.52933E-02	-8.29594E-03	-8.29573E-02	-1.87269E-01
41	9.07534E-03	-2.22930E-02	-4.67217E-02	-2.03390E-01
42	4.33286E-02	-3.57779E-02	-1.05473E-02	-2.18663E-01
43	7.74689E-02	-4.87338E-02	2.55537E-02	-2.33127E-01
44	1.11502E-01	-6.11704E-02	6.15669E-02	-2.46836E-01
45	1.45431E-01	-7.31092E-02	9.74803E-02	-2.59773E-01
46	1.79259E-01	-8.45863E-02	1.33280E-01	-2.71964E-01
47	2.12986E-01	-9.56374E-02	1.68953E-01	-2.83449E-01
48	2.46613E-01	-1.06257E-01	2.04485E-01	-2.94280E-01
49	2.80138E-01	-1.16467E-01	2.39865E-01	-3.04491E-01
50	3.13754E-01	-1.26346E-01	2.75428E-01	-3.14186E-01
51	3.47115E-01	-1.35797E-01	3.10883E-01	-3.23276E-01
52	3.80220E-01	-1.44786E-01	3.46221E-01	-3.31771E-01
53	4.13067E-01	-1.53260E-01	3.81433E-01	-3.39642E-01
54	4.45659E-01	-1.61189E-01	4.16510E-01	-3.46834E-01
55	4.78010E-01	-1.68569E-01	4.51447E-01	-3.53322E-01
56	5.10096E-01	-1.75416E-01	4.86237E-01	-3.59098E-01
57	5.41954E-01	-1.81603E-01	5.20879E-01	-3.64174E-01
58	5.73575E-01	-1.87308E-01	5.55364E-01	-3.68463E-01
59	6.04964E-01	-1.92241E-01	5.89683E-01	-3.71869E-01
60	6.36120E-01	-1.96431E-01	6.23817E-01	-3.74298E-01
61	6.67045E-01	-1.99825E-01	6.57742E-01	-3.75664E-01
62	6.97737E-01	-2.02353E-01	6.91432E-01	-3.75848E-01
63	7.28195E-01	-2.04079E-01	7.24857E-01	-3.74845E-01
64	7.58419E-01	-2.04884E-01	7.57984E-01	-3.72549E-01
65	7.88403E-01	-2.04733E-01	7.90782E-01	-3.68907E-01
66	8.20916E-01	-2.03309E-01	8.26119E-01	-3.63265E-01
67	8.53535E-01	-2.00722E-01	8.61418E-01	-3.55964E-01

POINT NO	XS	YS	XP	YP
68	8.86366E-01	-1.97047E-01	8.96674E-01	-3.47036E-01
69	9.19338E-01	-1.91963E-01	9.31881E-01	-3.36170E-01
70	9.52502E-01	-1.85172E-01	9.67043E-01	-3.23018E-01
71	9.85891E-01	-1.77150E-01	1.00217E+00	-3.08297E-01
72	1.01954E+00	-1.67594E-01	1.03723E+00	-2.91456E-01
73	1.05348E+00	-1.56474E-01	1.07238E+00	-2.72297E-01
74	1.08777E+00	-1.43216E-01	1.10750E+00	-2.50624E-01
75	1.12246E+00	-1.28413E-01	1.14269E+00	-2.27041E-01
76	1.15762E+00	-1.11729E-01	1.17796E+00	-2.00935E-01
77	1.19330E+00	-9.28691E-02	1.21338E+00	-1.72188E-01
78	1.22950E+00	-7.16875E-02	1.24899E+00	-1.40881E-01
79	1.26661E+00	-4.84599E-02	1.28485E+00	-1.07132E-01
80	1.30442E+00	-2.28205E-02	1.32103E+00	-7.06140E-02
81	1.34315E+00	5.49782E-03	1.35760E+00	-3.11560E-02

POINT NO	XSEMI	YSEMI
1	-1.51838E+00	1.00362E+00
2	-1.51888E+00	1.00418E+00
3	-1.51932E+00	1.00480E+00
4	-1.51970E+00	1.00546E+00
5	-1.52002E+00	1.00616E+00
6	-1.52027E+00	1.00689E+00
7	-1.52045E+00	1.00765E+00
8	-1.52055E+00	1.00842E+00
9	-1.52059E+00	1.00919E+00
10	-1.52055E+00	1.00997E+00
11	-1.52044E+00	1.01073E+00
12	-1.52025E+00	1.01147E+00
13	-1.52000E+00	1.01219E+00
14	-1.51968E+00	1.01287E+00
15	-1.51929E+00	1.01351E+00
16	-1.51885E+00	1.01409E+00
17	-1.51835E+00	1.01463E+00
18	-1.51780E+00	1.01510E+00
19	-1.51721E+00	1.01550E+00
20	-1.51658E+00	1.01583E+00
21	-1.51592E+00	1.01609E+00
22	-1.51524E+00	1.01627E+00
23	-1.51454E+00	1.01637E+00
24	-1.51384E+00	1.01639E+00
25	-1.51314E+00	1.01633E+00
26	-1.51244E+00	1.01618E+00
27	-1.51176E+00	1.01596E+00
28	-1.51111E+00	1.01566E+00
29	-1.51048E+00	1.01529E+00
30	-1.50989E+00	1.01485E+00
31	-1.50934E+00	1.01434E+00

SECTION NUMBER 5 'Z' = 4.5000

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SECTION PROPERTIES	SECTION AREA		=	4.3104E-01
	LOCATION OF CENTROID	XBAR	=	-6.9821E-03
	RELATIVE TO STACK AXIS	YBAR	=	4.2225E-03
	SECOND MOMENTS OF AREA	IX	=	5.9258E-02
	ABOUT CENTROID	IY	=	2.1181E-01
		IXY	=	-1.0537E-01
	PRINCIPAL SECOND MOMENTS	IPX	=	5.4513E-03 (AT -27.05 DEGREES TO 'X' AXIS)
	OF AREA ABOUT CENTROID	IPY	=	2.6562E-01 (AT -27.05 DEGREES TO 'Y' AXIS)
	TORSIONAL CONSTANT		=	3.3032E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.528[illegible]9E+00	1.165[illegible]2E+00	-1.53628E+00	1.15604E+00
2	-1.48710E+00	1.12557E+00	-1.49917E+00	1.11231E+00
3	-1.44624E+00	1.08629E+00	-1.46218E+00	1.06875E+00
4	-1.40554E+00	1.04725E+00	-1.42531E+00	1.02540E+00
5	-1.36510E+00	1.00851E+00	-1.38856E+00	9.82332E-01
6	-1.32464E+00	9.70077E-01	-1.35191E+00	9.39580E-01
7	-1.28446E+00	9.32028E-01	-1.31537E+00	8.97191E-01
8	-1.24449E+00	8.94436E-01	-1.27894E+00	8.55232E-01
9	-1.20472E+00	8.57325E-01	-1.24261E+00	8.13741E-01
10	-1.16518E+00	8.20696E-01	-1.20639E+00	7.72759E-01
11	-1.12547E+00	7.84598E-01	-1.17026E+00	7.32294E-01
12	-1.08677E+00	7.49091E-01	-1.13422E+00	6.92371E-01
13	-1.04788E+00	7.14186E-01	-1.09825E+00	6.53040E-01
14	-1.00917E+00	6.79877E-01	-1.06232E+00	6.14336E-01
15	-9.70636E-01	6.46154E-01	-1.02642E+00	5.76263E-01
16	-9.32249E-01	6.13060E-01	-9.90518E-01	5.38799E-01
17	-8.93939E-01	5.80620E-01	-9.54599E-01	5.01961E-01
18	-8.55159E-01	5.48246E-01	-9.17990E-01	4.65125E-01
19	-8.16413E-01	5.16469E-01	-8.81320E-01	4.28979E-01
20	-7.77726E-01	4.85294E-01	-8.44576E-01	3.93502E-01
21	-7.39121E-01	4.54752E-01	-8.07750E-01	3.58655E-01
22	-7.00582E-01	4.24848E-01	-7.70836E-01	3.24447E-01
23	-6.621[illegible]3E-01	3.95559E-01	-7.33825E-01	2.90917E-01
24	-6.23681E-01	3.66844E-01	-6.96710E-01	2.58071E-01
25	-5.85310E-01	3.38753E-01	-6.59483E-01	2.25901E-01
26	-5.46985E-01	3.11307E-01	-6.22138E-01	1.94357E-01
27	-5.08713E-01	2.84518E-01	-5.84668E-01	1.63501E-01
28	-4.70468E-01	2.58338E-01	-5.47067E-01	1.33354E-01
29	-4.32292E-01	2.32787E-01	-5.09334E-01	1.03938E-01
30	-3.94191E-01	2.07917E-01	-4.71472E-01	7.52102E-02
31	-3.56142E-01	1.83762E-01	-4.33487E-01	4.71908E-02
32	-3.18191E-01	1.60824E-01	-3.95384E-01	1.99386E-02
33	-2.80317E-01	1.37487E-01	-3.57168E-01	-6.50582E-03
34	-2.43848E-01	1.16132E-01	-3.20221E-01	-3.12490E-02
35	-2.07446E-01	9.54187E-02	-2.83190E-01	-5.53096E-02

POINT NO	XS	YS	XP	YP
36	-1.71114E-01	7.53464E-02	-2.46107E-01	-7.86350E-02
37	-1.34824E-01	5.58849E-02	-2.08958E-01	-1.01213E-01
38	-9.86394E-02	3.69784E-02	-1.71758E-01	-1.23033E-01
39	-6.24619E-02	1.86194E-02	-1.34516E-01	-1.44115E-01
40	-2.63847E-02	8.25617E-04	-9.72416E-02	-1.64512E-01
41	9.61931E-03	-1.64013E-02	-5.99430E-02	-1.84216E-01
42	4.55467E-02	-3.30922E-02	-2.26296E-02	-2.03198E-01
43	8.13937E-02	-4.92515E-02	1.46893E-02	-2.21454E-01
44	1.17159E-01	-6.49797E-02	5.20042E-02	-2.38995E-01
45	1.52841E-01	-8.02237E-02	8.93055E-02	-2.55835E-01
46	1.88440E-01	-9.50143E-02	1.26584E-01	-2.72026E-01
47	2.23956E-01	-1.09385E-01	1.63834E-01	-2.87536E-01
48	2.59386E-01	-1.23354E-01	2.01048E-01	-3.02383E-01
49	2.94730E-01	-1.36962E-01	2.38221E-01	-3.16587E-01
50	3.30716E-01	-1.50502E-01	2.76194E-01	-3.30458E-01
51	3.66535E-01	-1.63659E-01	3.14117E-01	-3.43687E-01
52	4.02184E-01	-1.76463E-01	3.51984E-01	-3.56248E-01
53	4.37663E-01	-1.88896E-01	3.89792E-01	-3.68145E-01
54	4.72956E-01	-2.00973E-01	4.27535E-01	-3.79361E-01
55	5.08098E-01	-2.12681E-01	4.65208E-01	-3.89885E-01
56	5.43051E-01	-2.24039E-01	5.02805E-01	-3.99701E-01
57	5.77823E-01	-2.35071E-01	5.40320E-01	-4.08803E-01
58	6.12409E-01	-2.45731E-01	5.77742E-01	-4.17212E-01
59	6.46801E-01	-2.55952E-01	6.15062E-01	-4.24883E-01
60	6.80997E-01	-2.65687E-01	6.52265E-01	-4.31752E-01
61	7.14956E-01	-2.74921E-01	6.89332E-01	-4.37758E-01
62	7.48636E-01	-2.83602E-01	7.26237E-01	-4.42907E-01
63	7.82192E-01	-2.91583E-01	7.62952E-01	-4.47101E-01
64	8.15433E-01	-2.98748E-01	7.99442E-01	-4.50187E-01
65	8.48407E-01	-3.04996E-01	8.35672E-01	-4.52060E-01
66	8.82282E-01	-3.10483E-01	8.73069E-01	-4.52704E-01
67	9.15556E-01	-3.14700E-01	9.09589E-01	-4.51900E-01
68	9.48342E-01	-3.17522E-01	9.45320E-01	-4.49502E-01
69	9.80777E-01	-3.18888E-01	9.80408E-01	-4.45465E-01
70	1.01299E+00	-3.18931E-01	1.01592E+00	-4.39920E-01
71	1.04511E+00	-3.17524E-01	1.04929E+00	-4.32770E-01
72	1.07724E+00	-3.14589E-01	1.08336E+00	-4.23955E-01
73	1.10948E+00	-3.10113E-01	1.11732E+00	-4.13453E-01
74	1.14191E+00	-3.04286E-01	1.15128E+00	-4.01480E-01
75	1.17461E+00	-2.96933E-01	1.18527E+00	-3.87755E-01
76	1.20760E+00	-2.87968E-01	1.21931E+00	-3.72208E-01
77	1.24091E+00	-2.77422E-01	1.25340E+00	-3.54836E-01
78	1.27455E+00	-2.65462E-01	1.28749E+00	-3.35684E-01
79	1.30853E+00	-2.51764E-01	1.32155E+00	-3.14463E-01
80	1.34286E+00	-2.36445E-01	1.35552E+00	-2.91038E-01
81	1.37759E+00	-2.19328E-01	1.38943E+00	-2.65340E-01

POINT NO	XSEMI	YSEMI
1	-1.53628E+00	1.15604E+00
2	-1.53671E+00	1.15654E+00
3	-1.53708E+00	1.15709E+00
4	-1.53741E+00	1.15767E+00
5	-1.53767E+00	1.15828E+00
6	-1.53758E+00	1.15892E+00
7	-1.53802E+00	1.15958E+00
8	-1.53810E+00	1.16024E+00

POINT NO	XSEMI	YSEMI
9	-1.53811E+00	1.16091E+00
10	-1.538[illegible]6E+00	1.16158E+00
11	-1.53794E+00	1.16223E+00
12	-1.53777E+00	1.16287E+00
13	-1.53753E+00	1.16348E+00
14	-1.53723E+00	1.16406E+00
15	-1.53687E+00	1.16459E+00
16	-1.53647E+00	1.16509E+00
17	-1.53612E+00	1.16553E+00
18	-1.53553E+00	1.16592E+00
19	-1.53503E+00	1.16625E+00
20	-1.53443E+00	1.16652E+00
21	-1.53385E+00	1.16672E+00
22	-1.53324E+00	1.16686E+00
23	-1.53263E+00	1.16692E+00
24	-1.53201E+00	1.16692E+00
25	-1.53139E+00	1.16684E+00
26	-1.53078E+00	1.16670E+00
27	-1.53019E+00	1.16649E+00
28	-1.52962E+00	1.16621E+00
29	-1.52917E+00	1.16587E+00
30	-1.52856E+00	1.16547E+00
31	-1.528[illegible]9E+00	1.16502E+00

SECTION NUMBER 6 'Z' = 5.0000
****

SECTION PROPERTIES

SECTION AREA		=	4.3221E-01
LOCATION OF CENTROID	XBAR	=	1.5261E-02
RELATIVE TO STACK AXIS	YBAR	=	4.2955E-03
SECOND MOMENTS OF AREA	IX	=	8.4456E-02
ABOUT CENTROID	IY	=	2.2484E-01
	IXY	=	-1.3313E-01
PRINCIPAL SECOND MOMENTS	IPX	=	4.1485E-03 (AT -31.10 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	=	3.0514E-01 (AT -31.10 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	2.9584E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.55321E+00	1.31097E+00	-1.56064E+00	1.30332E+00
2	-1.51298E+00	1.27033E+00	-1.52410E+00	1.25838E+00
3	-1.47258E+00	1.22971E+00	-1.48741E+00	1.21444E+00
4	-1.43204E+00	1.18915E+00	-1.45060E+00	1.17003E+00
5	-1.39143E+00	1.14864E+00	-1.41369E+00	1.12567E+00
6	-1.35079E+00	1.10819E+00	-1.37674E+00	1.08137E+00
7	-1.31018E+00	1.06787E+00	-1.33977E+00	1.03718E+00
8	-1.26962E+00	1.02771E+00	-1.30280E+00	9.93133E-01
9	-1.22914E+00	9.87721E-01	-1.26585E+00	9.49283E-01
10	-1.18872E+00	9.47980E-01	-1.22891E+00	9.05661E-01

POINT NO	XS	YS	XP	YP
11	-1.14839E+00	9.08567E-01	-1.19196E+00	8.62325E-01
12	-1.10812E+00	8.69518E-01	-1.15500E+00	8.19355E-01
13	-1.06792E+00	8.30859E-01	-1.11801E+00	7.76830E-01
14	-1.02779E+00	7.92665E-01	-1.08098E+00	7.34689E-01
15	-9.87730E-01	7.55014E-01	-1.04390E+00	6.93064E-01
16	-9.47743E-01	7.17945E-01	-1.00675E+00	6.52001E-01
17	-9.07838E-01	6.81479E-01	-9.69522E-01	6.11565E-01
18	-8.67952E-01	6.45582E-01	-9.32178E-01	5.71747E-01
19	-8.28100E-01	6.10322E-01	-8.94719E-01	5.32522E-01
20	-7.88292E-01	5.75697E-01	-8.57153E-01	4.93924E-01
21	-7.48539E-01	5.41677E-01	-8.19488E-01	4.56003E-01
22	-7.08849E-01	5.08246E-01	-7.81729E-01	4.18759E-01
23	-6.69230E-01	4.75453E-01	-7.43881E-01	3.82157E-01
24	-6.29685E-01	4.43301E-01	-7.05951E-01	3.46191E-01
25	-5.90219E-01	4.11750E-01	-6.67942E-01	3.10907E-01
26	-5.50836E-01	3.80782E-01	-6.29856E-01	2.76315E-01
27	-5.11538E-01	3.50423E-01	-5.91695E-01	2.42382E-01
28	-4.72328E-01	3.20692E-01	-5.53462E-01	2.09092E-01
29	-4.33217E-01	2.91559E-01	-5.15157E-01	1.76472E-01
30	-3.94179E-01	2.63008E-01	-4.76782E-01	1.44548E-01
31	-3.55247E-01	2.35043E-01	-4.38337E-01	1.13302E-01
32	-3.16412E-01	2.07695E-01	-3.99823E-01	8.27153E-02
33	-2.77677E-01	1.80954E-01	-3.61242E-01	5.28007E-02
34	-2.40417E-01	1.55724E-01	-3.23968E-01	2.46107E-02
35	-2.03257E-01	1.31064E-01	-2.86648E-01	-2.91140E-03
36	-1.66138E-01	1.06922E-01	-2.49285E-01	-2.97973E-02
37	-1.29240E-01	8.33435E-02	-2.11883E-01	-5.60141E-02
38	-9.23835E-02	6.03199E-02	-1.74446E-01	-8.16159E-02
39	-5.56290E-02	3.75413E-02	-1.36978E-01	-1.06552E-01
40	-1.89766E-02	1.53103E-02	-9.94831E-02	-1.30822E-01
41	1.75739E-02	-5.53746E-03	-6.19670E-02	-1.54436E-01
42	5.40221E-02	-2.64607E-02	-2.44344E-02	-1.77382E-01
43	9.03684E-02	-4.68594E-02	1.31086E-02	-1.99721E-01
44	1.26615E-01	-6.67422E-02	5.06559E-02	-2.21407E-01
45	1.62769E-01	-8.61207E-02	8.82010E-02	-2.42434E-01
46	1.98834E-01	-1.05054E-01	1.25738E-01	-2.62806E-01
47	2.34816E-01	-1.23518E-01	1.63263E-01	-2.82527E-01
48	2.70721E-01	-1.41514E-01	2.00774E-01	-3.01654E-01
49	3.06553E-01	-1.59068E-01	2.38270E-01	-3.20151E-01
50	3.43823E-01	-1.76789E-01	2.77172E-01	-3.38681E-01
51	3.80578E-01	-1.94079E-01	3.16049E-01	-3.56518E-01
52	4.17423E-01	-2.10877E-01	3.54902E-01	-3.73669E-01
53	4.54152E-01	-2.27224E-01	3.93729E-01	-3.90159E-01
54	4.90779E-01	-2.43099E-01	4.32529E-01	-4.05937E-01
55	5.27313E-01	-2.58533E-01	4.71302E-01	-4.21014E-01
56	5.63733E-01	-2.73485E-01	5.10045E-01	-4.35375E-01
57	6.00064E-01	-2.87986E-01	5.48758E-01	-4.49028E-01
58	6.36311E-01	-3.02053E-01	5.87442E-01	-4.61932E-01
59	6.72477E-01	-3.15653E-01	6.26095E-01	-4.74116E-01
60	7.08569E-01	-3.28768E-01	6.64718E-01	-4.85558E-01
61	7.44594E-01	-3.41464E-01	7.03311E-01	-4.96205E-01
62	7.80561E-01	-3.53604E-01	7.41877E-01	-5.06059E-01
63	8.16481E-01	-3.65334E-01	7.80415E-01	-5.15151E-01
64	8.52356E-01	-3.76554E-01	8.18930E-01	-5.23458E-01
65	8.88187E-01	-3.87259E-01	8.57422E-01	-5.30892E-01
66	9.27317E-01	-3.98389E-01	8.99283E-01	-5.37999E-01
67	9.66604E-01	-4.08958E-01	9.41326E-01	-5.44138E-01

POINT NO	XS	YS	XP	YP
68	1.006[illegible]4E+00	-4.18905E-01	9.83531E-01	-5.49197E-01
69	1.04561E+00	-4.28208E-01	1.02587E+00	-5.53082E-01
70	1.08530E+00	-4.36880E-01	1.06831E+00	-5.55811E-01
71	1.12509E+00	-4.44851E-01	1.11079E+00	-5.57290E-01
72	1.16494E+00	-4.52031E-01	1.15327E+00	-5.57362E-01
73	1.20482E+00	-4.58458E-01	1.19566E+00	-5.56029E-01
74	1.24467E+00	-4.64044E-01	1.23787E+00	-5.53206E-01
75	1.28445E+00	-4.68646E-01	1.27980E+00	-5.48683E-01
76	1.32406E+00	-4.72308E-01	1.32131E+00	-5.42477E-01
77	1.36341E+00	-4.74876E-01	1.36223E+00	-5.3443[illegible]E-01
78	1.40240E+00	-4.76195E-01	1.40240E+00	-5.[illegible]395E-01
79	1.44091E+00	-4.76340E-01	1.44163E+00	-5.12[illegible]10E-01
80	1.47883E+00	-4.75066E-01	1.47976E+00	-4.98[illegible]16E-01
81	1.51601E+00	-4.72223E-01	1.51660E+00	-4.82739E-01

POINT NO	XSEMI	YSEMI
1	-1.56364E+00	1.30332E+00
2	-1.56399E+00	1.30376E+00
3	-1.56130E+00	1.30423E+00
4	-1.56156E+00	1.30474E+00
5	-1.56178E+00	1.30527E+00
6	-1.56193E+00	1.30583E+00
7	-1.56204E+00	1.30639E+00
8	-1.56209E+00	1.30697E+00
9	-1.56208E+00	1.30755E+00
10	-1.56201E+00	1.30812E+00
11	-1.56189E+00	1.30869E+00
12	-1.56171E+00	1.30923E+00
13	-1.56149E+00	1.30975E+00
14	-1.56121E+00	1.31025E+00
15	-1.56088E+00	1.31071E+00
16	-1.56052E+00	1.31113E+00
17	-1.56011E+00	1.31151E+00
18	-1.55967E+00	1.31184E+00
19	-1.55919E+00	1.31212E+00
20	-1.55870E+00	1.31234E+00
21	-1.55818E+00	1.31251E+00
22	-1.55765E+00	1.31262E+00
23	-1.55711E+00	1.31267E+00
24	-1.55657E+00	1.31266E+00
25	-1.55603E+00	1.31258E+00
26	-1.55551E+00	1.31245E+00
27	-1.55500E+00	1.31226E+00
28	-1.55451E+00	1.31202E+00
29	-1.55404E+00	1.31172E+00
30	-1.55361E+00	1.31137E+00
31	-1.55321E+00	1.31097E+00

SECTION NUMBER 7 'Z' = 5.5000
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SECTION PROPERTIES	SECTION AREA		=	4.1420E-01
	LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	9.4696E-13
		YBAR	=	-1.9512E-03
	SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	1.0978E-01
		IY	=	2.0981E-01
		IXY	=	-1.4871E-01
	PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	2.8960E-03 (AT -35.71 DEGREES TO 'X' AXIS)
		IPY	=	3.1669E-01 (AT -35.71 DEGREES TO 'Y' AXIS)
	TORSIONAL CONSTANT		=	2.4255E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.52320E+00	1.44342E+00	-1.53719E+00	1.43622E+00
2	-1.48958E+00	1.40139E+00	-1.50111E+00	1.39096E+00
3	-1.45719E+00	1.35914E+00	-1.46520E+00	1.34548E+00
4	-1.41123E+00	1.31673E+00	-1.42962E+00	1.29983E+00
5	-1.37283E+00	1.27423E+00	-1.39448E+00	1.25409E+00
6	-1.33499E+00	1.23174E+00	-1.35981E+00	1.20833E+00
7	-1.29762E+00	1.18935E+00	-1.32554E+00	1.16263E+00
8	-1.26355E+00	1.14716E+00	-1.29157E+00	1.11710E+00
9	-1.22360E+00	1.10524E+00	-1.25773E+00	1.07180E+00
10	-1.18659E+00	1.06367E+00	-1.22387E+00	1.02680E+00
11	-1.14936E+00	1.02249E+00	-1.18983E+00	9.82156E-01
12	-1.11183E+00	9.81677E-01	-1.15552E+00	9.37901E-01
13	-1.07395E+00	9.41247E-01	-1.12087E+00	8.94028E-01
14	-1.03572E+00	9.01209E-01	-1.08584E+00	8.50525E-01
15	-9.97176E-01	8.61537E-01	-1.05044E+00	8.07408E-01
16	-9.58386E-01	8.22176E-01	-1.01471E+00	7.64683E-01
17	-9.19421E-01	7.83151E-01	-9.78678E-01	7.22311E-01
18	-8.81049E-01	7.45187E-01	-9.43100E-01	6.81068E-01
19	-8.42673E-01	7.07523E-01	-9.07306E-01	6.40148E-01
20	-8.04211E-01	6.71147E-01	-8.71332E-01	5.99578E-01
21	-7.65729E-01	6.33127E-01	-8.35202E-01	5.59382E-01
22	-7.27239E-01	5.96518E-01	-7.98931E-01	5.19551E-01
23	-6.89747E-01	5.60353E-01	-7.62526E-01	4.80161E-01
24	-6.50259E-01	5.24601E-01	-7.25987E-01	4.41264E-01
25	-6.11775E-01	4.89353E-01	-6.89311E-01	4.02893E-01
26	-5.73294E-01	4.54665E-01	-6.52494E-01	3.65015E-01
27	-5.34814E-01	4.20557E-01	-6.15533E-01	3.27714E-01
28	-4.96334E-01	3.86969E-01	-5.78424E-01	2.91045E-01
29	-4.57855E-01	3.53987E-01	-5.41160E-01	2.55030E-01
30	-4.19378E-01	3.21653E-01	-5.03740E-01	2.19609E-01
31	-3.80910E-01	2.89966E-01	-4.66165E-01	1.84858E-01
32	-3.42425E-01	2.58842E-01	-4.28433E-01	1.50821E-01
33	-3.03955E-01	2.28346E-01	-3.90546E-01	1.17507E-01
34	-2.66547E-01	1.99302E-01	-3.53561E-01	8.57281E-02
35	-2.29139E-01	1.70822E-01	-3.16485E-01	5.46130E-02

POINT NO	XS	YS	XP	YP
36	-1.91732E-01	1.42843E-01	-2.79319E-01	2.41651E-02
37	-1.54328E-01	1.15290E-01	-2.42069E-01	-5.65232E-03
38	-1.16930E-01	8.82110E-02	-2.04737E-01	-3.48769E-02
39	-7.95392E-02	6.15787E-02	-1.67327E-01	-6.35947E-02
40	-4.21568E-02	3.53719E-02	-1.29342E-01	-9.17562E-02
41	-4.78463E-03	9.53983E-03	-9.22822E-02	-1.19375E-01
42	3.25753E-02	-1.53268E-02	-5.46501E-02	-1.46469E-01
43	6.99212E-02	-4.11135E-02	-1.69465E-02	-1.73075E-01
44	1.07252E-01	-6.57221E-02	2.08273E-02	-1.99216E-01
45	1.44565E-01	-9.03664E-02	5.86703E-02	-2.24863E-01
46	1.81859E-01	-1.14079E-01	9.65816E-02	-2.50021E-01
47	2.19132E-01	-1.37744E-01	1.34560E-01	-2.74695E-01
48	2.56384E-01	-1.61065E-01	1.72606E-01	-2.98912E-01
49	2.93613E-01	-1.84041E-01	2.10719E-01	-3.22655E-01
50	3.32582E-01	-2.07754E-01	2.50774E-01	-3.47040E-01
51	3.71490E-01	-2.31063E-01	2.90928E-01	-3.70873E-01
52	4.13374E-01	-2.53955E-01	3.31177E-01	-3.94129E-01
53	4.49352E-01	-2.76414E-01	3.71519E-01	-4.16787E-01
54	4.87725E-01	-2.98450E-01	4.11950E-01	-4.38816E-01
55	5.26324E-01	-3.20021E-01	4.52465E-01	-4.60182E-01
56	5.64849E-01	-3.41155E-01	4.93059E-01	-4.80886E-01
57	6.03312E-01	-3.61829E-01	5.33728E-01	-5.00872E-01
58	6.41654E-01	-3.82063E-01	5.74464E-01	-5.20154E-01
59	6.79998E-01	-4.01801E-01	6.15262E-01	-5.38693E-01
60	7.18246E-01	-4.21194E-01	6.56115E-01	-5.56484E-01
61	7.56429E-01	-4.39945E-01	6.97014E-01	-5.73478E-01
62	7.94551E-01	-4.58319E-01	7.37951E-01	-5.89710E-01
63	8.32614E-01	-4.76200E-01	7.78918E-01	-6.05142E-01
64	8.70620E-01	-4.93646E-01	8.19905E-01	-6.19732E-01
65	9.08572E-01	-5.10639E-01	8.60902E-01	-6.33496E-01
66	9.45473E-01	-5.26722E-01	9.00576E-01	-6.46039E-01
67	9.82488E-01	-5.42421E-01	9.40396E-01	-6.57832E-01
68	1.01952E+00	-5.57781E-01	9.80365E-01	-6.68841E-01
69	1.05688E+00	-5.72812E-01	1.02049E+00	-6.79112E-01
70	1.09428E+00	-5.87471E-01	1.06076E+00	-6.88638E-01
71	1.13181E+00	-6.01755E-01	1.10120E+00	-6.97347E-01
72	1.16949E+00	-6.15674E-01	1.14181E+00	-7.05225E-01
73	1.20733E+00	-6.29247E-01	1.18258E+00	-7.12279E-01
74	1.24534E+00	-6.42441E-01	1.22352E+00	-7.18492E-01
75	1.28352E+00	-6.55250E-01	1.26462E+00	-7.23803E-01
76	1.32189E+00	-6.67631E-01	1.30590E+00	-7.28158E-01
77	1.36045E+00	-6.79596E-01	1.34733E+00	-7.31530E-01
78	1.39923E+00	-6.91156E-01	1.38893E+00	-7.33921E-01
79	1.43822E+00	-7.02247E-01	1.43068E+00	-7.35239E-01
80	1.47745E+00	-7.12836E-01	1.47257E+00	-7.35414E-01
81	1.51693E+00	-7.22885E-01	1.51459E+00	-7.34377E-01

POINT NO	XSEMI	YSEMI
1	-1.53719E+00	1.43622E+00
2	-1.53754E+00	1.43665E+00
3	-1.53783E+00	1.43713E+00
4	-1.53808E+00	1.43763E+00
5	-1.53827E+00	1.43815E+00
6	-1.53841E+00	1.43870E+00
7	-1.53848E+00	1.43925E+00
8	-1.53853E+00	1.43982E+00

POINT NO	XSEMI	YSEMI
9	-1.53847E+00	1.44038E+00
10	-1.53837E+00	1.44093E+00
11	-1.53822E+00	1.44148E+00
12	-1.53801E+00	1.44200E+00
13	-1.53775E+00	1.44251E+00
14	-1.53744E+00	1.44298E+00
15	-1.53708E+00	1.44341E+00
16	-1.53668E+00	1.44381E+00
17	-1.53624E+00	1.44417E+00
18	-1.53577E+00	1.44447E+00
19	-1.53527E+00	1.44473E+00
20	-1.53475E+00	1.44493E+00
21	-1.53421E+00	1.44508E+00
22	-1.53366E+00	1.44517E+00
23	-1.53311E+00	1.44520E+00
24	-1.53256E+00	1.44517E+00
25	-1.53201E+00	1.44508E+00
26	-1.53148E+00	1.44493E+00
27	-1.53096E+00	1.44473E+00
28	-1.53047E+00	1.44448E+00
29	-1.53001E+00	1.44417E+00
30	-1.52959E+00	1.44382E+00
31	-1.52920E+00	1.44342E+00

SECTION NUMBER 8 'Z' = 6.0000
****

SECTION PROPERTIES

SECTION AREA		=	3.8436E-01	
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	-1.2015E-02	
	YBAR	=	-5.2533E-04	
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	1.3113E-01	
	IY	=	1.7856E-01	
	IXY	=	-1.5144E-01	
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	1.5556E-03	(AT -40.55 DEGREES TO 'X' AXIS)
	IPY	=	3.0814E-01	(AT -40.55 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	1.8673E-03	

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.49111E+00	1.54782E+00	-1.49846E+00	1.54036E+00
2	-1.45819E+00	1.53674E+00	-1.46833E+00	1.49660E+00
3	-1.42437E+00	1.46502E+00	-1.43770E+00	1.45217E+00
4	-1.38979E+00	1.42280E+00	-1.40641E+00	1.40722E+00
5	-1.35431E+00	1.38019E+00	-1.37435E+00	1.36184E+00
6	-1.31737E+00	1.33725E+00	-1.34151E+00	1.31614E+00
7	-1.28359E+00	1.29405E+00	-1.30794E+00	1.27016E+00
8	-1.24326E+00	1.25067E+00	-1.27378E+00	1.22399E+00
9	-1.20528E+00	1.20719E+00	-1.23917E+00	1.17771E+00
10	-1.16711E+00	1.16369E+00	-1.20427E+00	1.13139E+00

POINT NO	XS	YS	XP	YP
11	-1.12888E+00	1.12025E+00	-1.16919E+00	1.08511E+00
12	-1.09370E+00	1.07693E+00	-1.13404E+00	1.03894E+00
13	-1.05264E+00	1.03378E+00	-1.09888E+00	9.92950E-01
14	-1.01474E+00	9.90902E-01	-1.06376E+00	9.47185E-01
15	-9.77322E-01	9.49359E-01	-1.02870E+00	9.01724E-01
16	-9.39494E-01	9.06153E-01	-9.93720E-01	8.56649E-01
17	-9.02135E-01	8.64403E-01	-9.58790E-01	8.11997E-01
18	-8.66179E-01	8.24604E-01	-9.25120E-01	7.69322E-01
19	-8.30246E-01	7.85283E-01	-8.91432E-01	7.27116E-01
20	-7.94290E-01	7.46386E-01	-8.57681E-01	6.85394E-01
21	-7.58272E-01	7.07952E-01	-8.23826E-01	6.44167E-01
22	-7.22160E-01	6.70099E-01	-7.89831E-01	6.03377E-01
23	-6.85929E-01	6.32554E-01	-7.55666E-01	5.63080E-01
24	-6.49567E-01	5.95541E-01	-7.21307E-01	5.23297E-01
25	-6.13074E-01	5.58954E-01	-6.86742E-01	4.84026E-01
26	-5.76453E-01	5.22816E-01	-6.51967E-01	4.45223E-01
27	-5.39717E-01	4.87109E-01	-6.16985E-01	4.06882E-01
28	-5.02883E-01	4.51787E-01	-5.81804E-01	3.69025E-01
29	-4.65969E-01	4.16811E-01	-5.46437E-01	3.31640E-01
30	-4.28997E-01	3.82192E-01	-5.10899E-01	2.94694E-01
31	-3.91998E-01	3.47921E-01	-4.75208E-01	2.58142E-01
32	-3.54962E-01	3.13968E-01	-4.39381E-01	2.22005E-01
33	-3.17936E-01	2.80285E-01	-4.03434E-01	1.86277E-01
34	-2.81440E-01	2.47381E-01	-3.67866E-01	1.51417E-01
35	-2.44940E-01	2.14825E-01	-3.32213E-01	1.16901E-01
36	-2.08559E-01	1.82635E-01	-2.96480E-01	8.27838E-02
37	-1.72175E-01	1.50788E-01	-2.60669E-01	4.90879E-02
38	-1.35825E-01	1.19311E-01	-2.24779E-01	1.58295E-02
39	-9.95365E-02	8.82430E-02	-1.88810E-01	-1.69975E-02
40	-6.32130E-02	5.75924E-02	-1.52761E-01	-4.93946E-02
41	-2.69410E-02	2.73441E-02	-1.16631E-01	-8.13110E-02
42	9.31790E-03	-2.53042E-03	-8.04191E-02	-1.12736E-01
43	4.55658E-02	-3.19990E-02	-4.41254E-02	-1.43672E-01
44	8.18093E-02	-6.10580E-02	-7.74981E-03	-1.74151E-01
45	1.18053E-01	-8.97270E-02	2.87071E-02	-2.04154E-01
46	1.54302E-01	-1.18053E-01	6.52445E-02	-2.33660E-01
47	1.90561E-01	-1.46061E-01	1.01861E-01	-2.62682E-01
48	2.26829E-01	-1.73743E-01	1.38555E-01	-2.91249E-01
49	2.63111E-01	-2.01115E-01	1.75323E-01	-3.19405E-01
50	3.01240E-01	-2.28604E-01	2.14047E-01	-3.48524E-01
51	3.39353E-01	-2.57853E-01	2.52874E-01	-3.77169E-01
52	3.77442E-01	-2.85813E-01	2.91806E-01	-4.05357E-01
53	4.15497E-01	-3.13505E-01	3.30845E-01	-4.33140E-01
54	4.53511E-01	-3.40974E-01	3.69993E-01	-4.60453E-01
55	4.91476E-01	-3.68193E-01	4.09252E-01	-4.87289E-01
56	5.29356E-01	-3.95128E-01	4.48623E-01	-5.13682E-01
57	5.67236E-01	-4.21816E-01	4.88108E-01	-5.39607E-01
58	6.05021E-01	-4.48252E-01	5.27709E-01	-5.65007E-01
59	6.42738E-01	-4.74380E-01	5.67428E-01	-5.89902E-01
60	6.80363E-01	-5.00177E-01	6.07265E-01	-6.14280E-01
61	7.17955E-01	-5.25776E-01	6.47222E-01	-6.38071E-01
62	7.55454E-01	-5.50880E-01	6.87298E-01	-6.61247E-01
63	7.92881E-01	-5.75653E-01	7.27495E-01	-6.83834E-01
64	8.30236E-01	-6.00038E-01	7.67811E-01	-7.05743E-01
65	8.67524E-01	-6.24032E-01	8.08246E-01	-7.26909E-01
66	9.01912E-01	-6.45794E-01	8.45691E-01	-7.45818E-01
67	9.36282E-01	-6.67192E-01	8.83177E-01	-7.64067E-01

POINT NO	XS	YS	XP	YP
68	9.79639E-01	-6.88244E-01	9.20702E-01	-7.81640E-01
69	1.00499E+00	-7.08981E-01	9.58265E-01	-7.98533E-01
70	1.03933E+00	-7.29449E-01	9.95864E-01	-8.14755E-01
71	1.07367E+00	-7.49653E-01	1.03350E+00	-8.30343E-01
72	1.10800E+00	-7.69601E-01	1.07116E+00	-8.45304E-01
73	1.14234E+00	-7.89321E-01	1.10886E+00	-8.59625E-01
74	1.17667E+00	-8.08841E-01	1.14660E+00	-8.73315E-01
75	1.21100E+00	-8.28198E-01	1.18438E+00	-8.86393E-01
76	1.24532E+00	-8.47433E-01	1.22220E+00	-8.98896E-01
77	1.27964E+00	-8.66565E-01	1.26007E+00	-9.10847E-01
78	1.31394E+00	-8.85621E-01	1.29799E+00	-9.22249E-01
79	1.34823E+00	-9.04635E-01	1.33598E+00	-9.33125E-01
80	1.38248E+00	-9.23643E-01	1.37404E+00	-9.43502E-01
81	1.41671E+00	-9.42677E-01	1.41219E+00	-9.53405E-01

POINT NO	XSEMI	YSEMI
1	-1.49846E+00	1.54036E+00
2	-1.49875E+00	1.54081E+00
3	-1.49900E+00	1.54129E+00
4	-1.49920E+00	1.54180E+00
5	-1.49936E+00	1.54233E+00
6	-1.49946E+00	1.54289E+00
7	-1.49952E+00	1.54346E+00
8	-1.49953E+00	1.54403E+00
9	-1.49948E+00	1.54461E+00
10	-1.49938E+00	1.54518E+00
11	-1.49923E+00	1.54574E+00
12	-1.49904E+00	1.54628E+00
13	-1.49880E+00	1.54680E+00
14	-1.49851E+00	1.54728E+00
15	-1.49819E+00	1.54774E+00
16	-1.49782E+00	1.54815E+00
17	-1.49743E+00	1.54852E+00
18	-1.49701E+00	1.54883E+00
19	-1.49656E+00	1.54910E+00
20	-1.49608E+00	1.54931E+00
21	-1.49559E+00	1.54947E+00
22	-1.49509E+00	1.54957E+00
23	-1.49459E+00	1.54960E+00
24	-1.49409E+00	1.54958E+00
25	-1.49360E+00	1.54949E+00
26	-1.49312E+00	1.54935E+00
27	-1.49267E+00	1.54915E+00
28	-1.49223E+00	1.54889E+00
29	-1.49182E+00	1.54858E+00
30	-1.49145E+00	1.54823E+00
31	-1.49111E+00	1.54782E+00

SECTION NUMBER 9 'Z' = 6.5000

SECTION PROPERTIES

SECTION AREA		=	3.5816E-01
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	1.8416E-03
	YBAR	=	-9.6987E-03
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	1.4996E-01
	IY	=	1.5472E-01
	IXY	=	-1.5132E-01
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	9.3916E-04 (AT -44.55 DEGREES TO 'X' AXIS)
	IPY	=	3.0368E-01 (AT -44.55 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	1.4366E-03

SECTION COORDINATES

POINT NO	S	YS	XP	YP
1	-1.43445E+00	1.64638E+00	-1.44299E+00	1.63913E+00
2	-1.39938E+00	1.60504E+00	-1.41118E+00	1.59558E+00
3	-1.36516E+00	1.56326E+00	-1.37927E+00	1.55135E+00
4	-1.33133E+00	1.52053E+00	-1.34727E+00	1.50657E+00
5	-1.29541E+00	1.47756E+00	-1.31519E+00	1.46132E+00
6	-1.26043E+00	1.43421E+00	-1.28307E+00	1.41570E+00
7	-1.22943E+00	1.39053E+00	-1.25092E+00	1.36972E+00
8	-1.19340E+00	1.34650E+00	-1.21873E+00	1.32344E+00
9	-1.15534E+00	1.30228E+00	-1.18653E+00	1.27691E+00
10	-1.12026E+00	1.25791E+00	-1.15428E+00	1.23023E+00
11	-1.08515E+00	1.21343E+00	-1.12199E+00	1.18343E+00
12	-1.04938E+00	1.16892E+00	-1.08962E+00	1.13658E+00
13	-1.01475E+00	1.12445E+00	-1.05716E+00	1.08975E+00
14	-9.79441E-01	1.08006E+00	-1.02458E+00	1.04301E+00
15	-9.44144E-01	1.03599E+00	-9.91876E-01	9.96421E-01
16	-9.08547E-01	9.91958E-01	-9.59014E-01	9.50067E-01
17	-8.72946E-01	9.48325E-01	-9.25979E-01	9.04017E-01
18	-8.35978E-01	9.07167E-01	-8.94387E-01	8.63531E-01
19	-8.04933E-01	8.66345E-01	-8.62612E-01	8.17373E-01
20	-7.73711E-01	8.23869E-01	-8.30658E-01	7.74573E-01
21	-7.36415E-01	7.85709E-01	-7.98532E-01	7.32141E-01
22	-7.02349E-01	7.45872E-01	-7.66243E-01	6.90068E-01
23	-6.67614E-01	7.06409E-01	-7.33801E-01	6.48372E-01
24	-6.33122E-01	6.67284E-01	-7.01218E-01	6.07033E-01
25	-5.98587E-01	6.28521E-01	-6.68504E-01	5.66079E-01
26	-5.64317E-01	5.90862E-01	-6.35670E-01	5.25513E-01
27	-5.29422E-01	5.51947E-01	-6.02722E-01	4.85332E-01
28	-4.94833E-01	5.14182E-01	-5.69670E-01	4.45490E-01
29	-4.60164E-01	4.76764E-01	-5.36517E-01	4.06027E-01
30	-4.25534E-01	4.39680E-01	-5.03266E-01	3.66950E-01
31	-3.90821E-01	4.02898E-01	-4.69917E-01	3.28259E-01
32	-3.56117E-01	3.66458E-01	-4.36467E-01	2.89947E-01
33	-3.21368E-01	3.30366E-01	-4.02915E-01	2.51980E-01
34	-2.86645E-01	2.94698E-01	-3.69339E-01	2.14490E-01
35	-2.51976E-01	2.59354E-01	-3.35660E-01	1.77401E-01

POINT NO	XS	YS	XP	YP
36	-2.17243E-01	2.24313E-01	-3.01874E-01	1.40731E-01
37	-1.82448E-01	1.83611E-01	-2.67983E-01	1.04387E-01
38	-1.47714E-01	1.55242E-01	-2.33986E-01	6.84315E-02
39	-1.12924E-01	1.21183E-01	-1.99887E-01	3.28662E-02
40	-7.81217E-02	8.74326E-02	-1.65686E-01	-2.29795E-03
41	-4.33392E-02	5.33723E-02	-1.31387E-01	-3.73846E-02
42	-8.49367E-03	2.08469E-02	-9.69909E-02	-7.14916E-02
43	2.63294E-02	-1.13836E-02	-6.25027E-02	-1.05535E-01
44	6.11448E-02	-4.43229E-02	-2.79252E-02	-1.39193E-01
45	9.59547E-02	-7.67671E-02	6.73010E-03	-1.72455E-01
46	1.33754E-01	-1.09726E-01	4.14835E-02	-2.05357E-01
47	1.69541E-01	-1.40374E-01	7.63075E-02	-2.37883E-01
48	2.03113E-01	-1.71741E-01	1.11236E-01	-2.70046E-01
49	2.35361E-01	-2.02836E-01	1.46178E-01	-3.01827E-01
50	2.72416E-01	-2.35075E-01	1.82845E-01	-3.34674E-01
51	3.07733E-01	-2.66995E-01	2.19566E-01	-3.67144E-01
52	3.44332E-01	-2.98627E-01	2.56402E-01	-3.99201E-01
53	3.83276E-01	-3.29965E-01	2.93295E-01	-4.30842E-01
54	4.16522E-01	-3.61557E-01	3.30267E-01	-4.62065E-01
55	4.52735E-01	-3.91648E-01	3.67319E-01	-4.92891E-01
56	4.88540E-01	-4.22400E-01	4.04453E-01	-5.23283E-01
57	5.24922E-01	-4.52765E-01	4.41671E-01	-5.53246E-01
58	5.61347E-01	-4.82754E-01	4.78973E-01	-5.82795E-01
59	5.96912E-01	-5.12565E-01	5.16362E-01	-6.11917E-01
60	6.32811E-01	-5.42190E-01	5.53837E-01	-6.40538E-01
61	6.68652E-01	-5.71591E-01	5.91401E-01	-6.68821E-01
62	7.04414E-01	-6.01777E-01	6.29052E-01	-6.96647E-01
63	7.40359E-01	-6.23775E-01	6.66793E-01	-7.24014E-01
64	7.75695E-01	-6.59625E-01	7.04623E-01	-7.50923E-01
65	8.11221E-01	-6.87284E-01	7.42542E-01	-7.77396E-01
66	8.46370E-01	-7.15305E-01	7.80725E-01	-8.03092E-01
67	8.97825E-01	-7.43175E-01	8.17575E-01	-8.28312E-01
68	9.15435E-01	-7.70933E-01	8.55194E-01	-8.53092E-01
69	9.50332E-01	-7.94569E-01	8.92885E-01	-8.77431E-01
70	9.84575E-01	-8.26399E-01	9.30647E-01	-9.01350E-01
71	1.01890E+00	-8.53523E-01	9.68484E-01	-9.24826E-01
72	1.05319E+00	-8.81871E-01	1.00640E+00	-9.47860E-01
73	1.08738E+00	-9.08166E-01	1.04440E+00	-9.70447E-01
74	1.12147E+00	-9.35408E-01	1.08247E+00	-9.92613E-01
75	1.15547E+00	-9.62595E-01	1.12063E+00	-1.01434E+00
76	1.18938E+00	-9.89740E-01	1.15887E+00	-1.03562E+00
77	1.22318E+00	-1.01687E+00	1.19719E+00	-1.05643E+00
78	1.25699E+00	-1.04401E+00	1.23560E+00	-1.07681E+00
79	1.29056E+00	-1.07114E+00	1.27409E+00	-1.09674E+00
80	1.32411E+00	-1.09826E+00	1.31268E+00	-1.11618E+00
81	1.35742E+00	-1.12539E+00	1.35134E+00	-1.13512E+00

POINT NO	XSEMI	YSEMI
1	-1.44278E+00	1.63913E+00
2	-1.44332E+00	1.63959E+00
3	-1.44358E+00	1.64009E+00
4	-1.44318E+00	1.64061E+00
5	-1.44377E+00	1.64116E+00
6	-1.44417E+00	1.64173E+00
7	-1.44412E+00	1.64231E+00
8	-1.44411E+00	1.64289E+00

POINT NO	XSEMI	YSEMI
9	-1.44404E+00	1.64347E+00
10	-1.44392E+00	1.64405E+00
11	-1.44373E+00	1.64461E+00
12	-1.44349E+00	1.64515E+00
13	-1.44320E+00	1.64566E+00
14	-1.44286E+00	1.64614E+00
15	-1.44247E+00	1.64658E+00
16	-1.44204E+00	1.64699E+00
17	-1.44158E+00	1.64734E+00
18	-1.44108E+00	1.64765E+00
19	-1.44056E+00	1.64790E+00
20	-1.44002E+00	1.64809E+00
21	-1.43946E+00	1.64823E+00
22	-1.43890E+00	1.64831E+00
23	-1.43833E+00	1.64832E+00
24	-1.43777E+00	1.64828E+00
25	-1.43722E+00	1.64817E+00
26	-1.43668E+00	1.64801E+00
27	-1.43617E+00	1.64778E+00
28	-1.43568E+00	1.64751E+00
29	-1.43523E+00	1.64718E+00
30	-1.43482E+00	1.64680E+00
31	-1.43445E+00	1.64638E+00

SECTION NUMBER 10 'Z' = 7.0000
****

SECTION PROPERTIES

SECTION AREA		=	3.3118E-01	
LOCATION OF CENTROID	XBAR	=	6.1188E-03	
RELATIVE TO STACK AXIS	YBAR	=	-1.2478E-02	
SECOND MOMENTS OF AREA	IX	=	1.6245E-01	
ABOUT CENTROID	IY	=	1.2883E-01	
	IXY	=	-1.4404E-01	
PRINCIPAL SECOND MOMENTS	IPX	=	2.9066E-01	(AT 41.67 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	=	6.1773E-04	(AT 41.67 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	1.1011E-03	

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.36347E+00	1.73072E+00	-1.37171E+00	1.72382E+00
2	-1.33170E+00	1.69966E+00	-1.34183E+00	1.68089E+00
3	-1.29822E+00	1.64780E+00	-1.31191E+00	1.63717E+00
4	-1.26565E+00	1.61529E+00	-1.28191E+00	1.59278E+00
5	-1.23297E+00	1.56225E+00	-1.25184E+00	1.54782E+00
6	-1.20149E+00	1.51873E+00	-1.22170E+00	1.50240E+00
7	-1.16731E+00	1.47474E+00	-1.19146E+00	1.45653E+00
8	-1.13432E+00	1.43037E+00	-1.16113E+00	1.41025E+00
9	-1.10122E+00	1.38570E+00	-1.13070E+00	1.36365E+00
10	-1.06812E+00	1.34076E+00	-1.10016E+00	1.31679E+00

POINT NO	XS	YS	XP	YP
11	-1.03472E+00	1.29559E+00	-1.06950E+00	1.26972E+00
12	-1.00131E+00	1.25028E+00	-1.03872E+00	1.22247E+00
13	-9.678[illegible]E-01	1.21488E+00	-1.00782E+00	1.17513E+00
14	-9.342[illegible]1E-01	1.15943E+00	-9.76786E-01	1.12774E+00
15	-9.005[illegible]8E-01	1.11399E+00	-9.45622E-01	1.08035E+00
16	-8.66731E-01	1.06862E+00	-9.14323E-01	1.03363E+00
17	-8.32877E-01	1.02336E+00	-8.82889E-01	9.85822E-01
18	-8.01122E-01	9.81019E-01	-8.53252E-01	9.41636E-01
19	-7.69[illegible]44E-01	9.35834E-01	-8.23491E-01	8.97610E-01
20	-7.37[illegible]99E-01	8.96830E-01	-7.93608E-01	8.53770E-01
21	-7.05042E-01	8.550[illegible]E-01	-7.63695E-01	8.10138E-01
22	-6.72928E-01	8.13389E-01	-7.33482E-01	7.66737E-01
23	-6.40751E-01	7.72014E-01	-7.03243E-01	7.23563E-01
24	-6.08549E-01	7.30902E-01	-6.72888E-01	6.80653E-01
25	-5.76234E-01	6.90068E-01	-6.42418E-01	6.38032E-01
26	-5.43932E-01	6.49504E-01	-6.11836E-01	5.95720E-01
27	-5.11643E-01	6.09234E-01	-5.81140E-01	5.53738E-01
28	-4.79271E-01	5.69292E-01	-5.50333E-01	5.12078E-01
29	-4.46869E-01	5.29694E-01	-5.19416E-01	4.70757E-01
30	-4.14436E-01	4.90462E-01	-4.88369E-01	4.29811E-01
31	-3.81944E-01	4.51580E-01	-4.57255E-01	3.89256E-01
32	-3.49516E-01	4.13048E-01	-4.26014E-01	3.49111E-01
33	-3.17019E-01	3.74913E-01	-3.94666E-01	3.09381E-01
34	-2.84563E-01	3.37354E-01	-3.63375E-01	2.70235E-01
35	-2.52278E-01	3.00179E-01	-3.31988E-01	2.31505E-01
36	-2.19867E-01	2.63329E-01	-3.00510E-01	1.93184E-01
37	-1.87432E-01	2.26774E-01	-2.68945E-01	1.55259E-01
38	-1.54977E-01	1.90544E-01	-2.37295E-01	1.17727E-01
39	-1.22535E-01	1.54613E-01	-2.05564E-01	8.05234E-02
40	-9.00[illegible]E-02	1.18976E-01	-1.73757E-01	4.36581E-02
41	-5.75191E-02	8.36148E-02	-1.41876E-01	7.13962E-03
42	-2.53111E-02	4.84859E-02	-1.09925E-01	-2.90470E-02
43	7.50257E-03	1.35899E-02	-7.79076E-02	-6.49085E-02
44	4.03270E-02	-2.13734E-02	-4.58267E-02	-1.00476E-01
45	7.25350E-02	-5.55126E-02	-1.36858E-02	-1.35775E-01
46	1.05354E-01	-8.974[illegible]5E-02	1.85118E-02	-1.70795E-01
47	1.37564E-01	-1.23792E-01	5.07628E-02	-2.05540E-01
48	1.70056E-01	-1.57680E-01	8.30642E-02	-2.40019E-01
49	2.02556E-01	-1.914[illegible]1E-01	1.15413E-01	-2.74253E-01
50	2.35332E-01	-2.26355E-01	1.49175E-01	-3.09701E-01
51	2.70194E-01	-2.61113E-01	1.82996E-01	-3.449[illegible]8E-01
52	3.03760E-01	-2.957[illegible]5E-01	2.16874E-01	-3.79844E-01
53	3.37684E-01	-3.30094E-01	2.50806E-01	-4.14496E-01
54	3.71359E-01	-3.64260E-01	2.84792E-01	-4.48885E-01
55	4.04975E-01	-3.982[illegible]5E-01	3.18835E-01	-4.82991E-01
56	4.38524E-01	-4.31968E-01	3.52937E-01	-5.16773E-01
57	4.71998E-01	-4.65524E-01	3.87098E-01	-5.50211E-01
58	5.05370E-01	-4.98851E-01	4.21321E-01	-5.83324E-01
59	5.38693E-01	-5.31947E-01	4.55606E-01	-6.16105E-01
60	5.71898E-01	-5.64846E-01	4.89955E-01	-6.48507E-01
61	6.050[illegible]E-01	-5.97542E-01	5.24369E-01	-6.80509E-01
62	6.37993E-01	-6.30064E-01	5.58848E-01	-7.12127E-01
63	6.73872E-01	-6.62224E-01	5.93393E-01	-7.43362E-01
64	7.03630E-01	-6.94227E-01	6.28004E-01	-7.74165E-01
65	7.36263E-01	-7.26039E-01	6.62683E-01	-8.04513E-01
66	7.73812E-01	-7.53584E-01	6.99658E-01	-8.36323E-01
67	8.05241E-01	-7.92900E-01	7.36698E-01	-8.67668E-01

POINT NO	XS	YS	XP	YP
68	8.39546E-01	-8.26089E-01	7.73839E-01	-8.96508E-01
69	8.73728E-01	-8.59130E-01	8.10992E-01	-9.28860E-01
70	9.07750E-01	-8.92033E-01	8.48251E-01	-9.58813E-01
71	9.41698E-01	-9.24668E-01	8.85594E-01	-9.88326E-01
72	9.75480E-01	-9.57669E-01	9.23025E-01	-1.01741E+00
73	1.00912E+00	-9.91428E-01	9.60549E-01	-1.04612E+00
74	1.04261E+00	-1.02319E+00	9.98174E-01	-1.07447E+00
75	1.07595E+00	-1.05601E+00	1.03591E+00	-1.10244E+00
76	1.10913E+00	-1.08889E+00	1.07375E+00	-1.13009E+00
77	1.14214E+00	-1.12185E+00	1.11172E+00	-1.15743E+00
78	1.17498E+00	-1.15495E+00	1.14983E+00	-1.18446E+00
79	1.20763E+00	-1.18822E+00	1.18808E+00	-1.21122E+00
80	1.24009E+00	-1.22167E+00	1.22648E+00	-1.23771E+00
81	1.27234E+00	-1.25534E+00	1.26504E+00	-1.26394E+00

POINT NO	XSEMI	YSEMI
1	-1.37171E+00	1.72382E+00
2	-1.372[illegible]1E+00	1.72428E+00
3	-1.37227E+00	1.72477E+00
4	-1.37247E+00	1.72529E+00
5	-1.37262E+00	1.72584E+00
6	-1.37271E+00	1.72639E+00
7	-1.37274E+00	1.72696E+00
8	-1.37271E+00	1.72753E+00
9	-1.37263E+00	1.72810E+00
10	-1.37246E+00	1.72866E+00
11	-1.37228E+00	1.72920E+00
12	-1.37213E+00	1.72973E+00
13	-1.37173E+00	1.73022E+00
14	-1.37138E+00	1.73069E+00
15	-1.37098E+00	1.73111E+00
16	-1.37055E+00	1.73150E+00
17	-1.37018E+00	1.73183E+00
18	-1.36958E+00	1.73212E+00
19	-1.363[illegible]6E+00	1.73236E+00
20	-1.36852E+00	1.73254E+00
21	-1.36796E+00	1.73266E+00
22	-1.36741E+00	1.73272E+00
23	-1.36685E+00	1.73272E+00
24	-1.36629E+00	1.73266E+00
25	-1.36575E+00	1.73255E+00
26	-1.36523E+00	1.73237E+00
27	-1.36473E+00	1.73214E+00
28	-1.36426E+00	1.73186E+00
29	-1.36382E+00	1.73153E+00
30	-1.36343E+00	1.73115E+00
31	-1.36307E+00	1.73072E+00

SECTION NUMBER 11 'Z' = 7.5303

SECTION PROPERTIES

SECTION AREA		=	3.3418E-01
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	6.5938E-04
	YBAR	=	-9.3229E-03
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	1.6673E-01
	IY	=	1.0130E-01
	IXY	=	-1.2958E-01
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	2.6766E-01 (AT 37.91 DEGREES TO 'X' AXIS)
	IPY	=	3.7215E-04 (AT 37.91 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	8.5302E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.27311E+00	1.73426E+00	-1.28174E+00	1.78785E+00
2	-1.24317E+00	1.75341E+00	-1.25434E+00	1.74585E+00
3	-1.21292E+00	1.71234E+00	-1.22627E+00	1.70285E+00
4	-1.18265E+00	1.67014E+00	-1.19843E+00	1.65902E+00
5	-1.15226E+00	1.62722E+00	-1.17050E+00	1.61446E+00
6	-1.12174E+00	1.58364E+00	-1.14247E+00	1.56930E+00
7	-1.09111E+00	1.53942E+00	-1.11434E+00	1.52351E+00
8	-1.06036E+00	1.49469E+00	-1.08611E+00	1.47716E+00
9	-1.02949E+00	1.44952E+00	-1.05776E+00	1.43037E+00
10	-9.98511E-01	1.40392E+00	-1.02930E+00	1.38319E+00
11	-9.67419E-01	1.35797E+00	-1.00071E+00	1.33563E+00
12	-9.36221E-01	1.31177E+00	-9.72005E-01	1.28780E+00
13	-9.04919E-01	1.26539E+00	-9.43169E-01	1.23976E+00
14	-8.73519E-01	1.21878E+00	-9.14203E-01	1.19157E+00
15	-8.42027E-01	1.17212E+00	-8.85106E-01	1.14328E+00
16	-8.10447E-01	1.12544E+00	-8.55875E-01	1.09496E+00
17	-7.78795E-01	1.07880E+00	-8.26510E-01	1.04668E+00
18	-7.49184E-01	1.03538E+00	-7.99004E-01	1.00172E+00
19	-7.19512E-01	9.92063E-01	-7.71384E-01	9.56868E-01
20	-6.89775E-01	9.48847E-01	-7.43651E-01	9.12142E-01
21	-6.59976E-01	9.05767E-01	-7.15806E-01	8.67560E-01
22	-6.30116E-01	8.62844E-01	-6.87849E-01	8.23129E-01
23	-6.00201E-01	8.20095E-01	-6.59782E-01	7.78880E-01
24	-5.70234E-01	7.77536E-01	-6.31605E-01	7.34835E-01
25	-5.40219E-01	7.35163E-01	-6.03319E-01	6.91012E-01
26	-5.10159E-01	6.93012E-01	-5.74926E-01	6.47428E-01
27	-4.80060E-01	6.51110E-01	-5.46427E-01	6.04079E-01
28	-4.49924E-01	6.09478E-01	-5.17824E-01	5.60997E-01
29	-4.19756E-01	5.68111E-01	-4.89118E-01	5.18212E-01
30	-3.89560E-01	5.27020E-01	-4.60312E-01	4.75739E-01
31	-3.59341E-01	4.86231E-01	-4.31406E-01	4.33597E-01
32	-3.29102E-01	4.45770E-01	-4.02402E-01	3.91783E-01
33	-2.98848E-01	4.05674E-01	-3.73304E-01	3.50310E-01
34	-2.69292E-01	3.66461E-01	-3.44011E-01	3.10191E-01

POINT NO	XS	YS	XP	YP
36	-2.13799E-01	2.91095E-01	-2.87569E-01	2.31002E-01
37	-1.83473E-01	2.52128E-01	-2.58828E-01	1.91912E-01
38	-1.50824E-01	2.14437E-01	-2.30012E-01	1.53118E-01
39	-1.21164E-01	1.77099E-01	-2.01127E-01	1.14620E-01
40	-9.14939E-02	1.39834E-01	-1.72177E-01	7.64246E-02
41	-6.18173E-02	1.02804E-01	-1.43167E-01	3.85218E-02
42	-3.21376E-02	6.61361E-02	-1.14099E-01	9.00491E-04
43	-2.45831E-03	2.95959E-02	-8.49773E-02	-3.64509E-02
44	2.72174E-02	-6.74834E-03	-5.58067E-02	-7.35610E-02
45	5.68967E-02	-4.29065E-02	-2.65909E-02	-1.10443E-01
46	8.65458E-02	-7.89930E-02	2.66649E-03	-1.47094E-01
47	1.16191E-01	-1.14729E-01	3.19617E-02	-1.83521E-01
48	1.45820E-01	-1.50438E-01	6.12912E-02	-2.19738E-01
49	1.75428E-01	-1.86021E-01	9.06517E-02	-2.55758E-01
50	2.06168E-01	-2.22866E-01	1.21200E-01	-2.93038E-01
51	2.36867E-01	-2.59554E-01	1.51785E-01	-3.30078E-01
52	2.67520E-01	-2.96083E-01	1.82405E-01	-3.66941E-01
53	2.95122E-01	-3.32465E-01	2.13055E-01	-4.03580E-01
54	3.25659E-01	-3.68664E-01	2.43732E-01	-4.39981E-01
55	3.59154E-01	-4.04668E-01	2.74436E-01	-4.76150E-01
56	3.89557E-01	-4.40464E-01	3.05170E-01	-5.12074E-01
57	4.19838E-01	-4.76069E-01	3.35936E-01	-5.47715E-01
58	4.50138E-01	-5.11494E-01	3.66736E-01	-5.83053E-01
59	4.80279E-01	-5.46731E-01	3.97573E-01	-6.18071E-01
60	5.10311E-01	-5.81678E-01	4.28448E-01	-6.52786E-01
61	5.40228E-01	-6.16422E-01	4.59364E-01	-6.87170E-01
62	5.70021E-01	-6.50954E-01	4.90322E-01	-7.21182E-01
63	5.99684E-01	-6.85278E-01	5.21324E-01	-7.54806E-01
64	6.29211E-01	-7.19355E-01	5.52370E-01	-7.88037E-01
65	6.59576E-01	-7.53163E-01	5.83462E-01	-8.20895E-01
66	6.91134E-01	-7.93536E-01	6.18131E-01	-8.56982E-01
67	7.23511E-01	-8.27691E-01	6.52852E-01	-8.92536E-01
68	7.55724E-01	-8.64614E-01	6.87627E-01	-9.27610E-01
69	7.87761E-01	-9.01390E-01	7.22462E-01	-9.62247E-01
70	8.19616E-01	-9.35052E-01	7.57360E-01	-9.96410E-01
71	8.51253E-01	-9.74595E-01	7.92326E-01	-1.03018E+00
72	8.82759E-01	-1.01179E+00	8.27367E-01	-1.06356E+00
73	9.14379E-01	-1.04758E+00	8.62487E-01	-1.09655E+00
74	9.45152E-01	-1.0[illegible]6E+00	8.97694E-01	-1.12922E+00
75	9.75865E-01	-1.12058E+00	9.32996E-01	-1.16156E+00
76	1.01544E+00	-1.15720E+00	9.68399E-01	-1.19358E+00
77	1.03676E+00	-1.19391E+00	1.00391E+00	-1.22535E+00
78	1.06651E+00	-1.23077E+00	1.03955E+00	-1.25685E+00
79	1.09658E+00	-1.26781E+00	1.07532E+00	-1.28812E+00
80	1.12616E+00	-1.30505E+00	1.11122E+00	-1.31918E+00
81	1.15522E+00	-1.34252E+00	1.14729E+00	-1.35005E+00

POINT NO	XSEMI	YSEMI
1	-1.28174E+00	1.78785E+00
2	-1.28202E+00	1.78837E+00
3	-1.28225E+00	1.78878E+00
4	-1.28243E+00	1.78929E+00
5	-1.28255E+00	1.78981E+00
6	-1.28262E+00	1.79035E+00
7	-1.28263E+00	1.79089E+00
8	-1.28259E+00	1.79144E+00

POINT NO	XSEMI	YSEMI
9	-1.28248E+00	1.79198E+00
10	-1.28233E+00	1.79251E+00
11	-1.28211E+00	1.79303E+00
12	-1.28185E+00	1.79352E+00
13	-1.28154E+00	1.79399E+00
14	-1.28118E+00	1.79443E+00
15	-1.28078E+00	1.79483E+00
16	-1.28035E+00	1.79518E+00
17	-1.27988E+00	1.79553E+00
18	-1.27939E+00	1.79576E+00
19	-1.27887E+00	1.79597E+00
20	-1.27834E+00	1.79613E+00
21	-1.27781E+00	1.79623E+00
22	-1.27726E+00	1.79628E+00
23	-1.27671E+00	1.79627E+00
24	-1.27618E+00	1.79620E+00
25	-1.27565E+00	1.79607E+00
26	-1.27515E+00	1.79589E+00
27	-1.27467E+00	1.79566E+00
28	-1.27423E+00	1.79538E+00
29	-1.27381E+00	1.79505E+00
30	-1.27344E+00	1.79467E+00
31	-1.27311E+00	1.79426E+00

SECTION NUMBER 12 'Z' = 8.0000
****

SECTION PROPERTIES

SECTION AREA		= 2.7642E-01	
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	= -1.7170E-03	
	YBAR	= -5.8601E-03	
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	= 1.6126E-01	
	IY	= 7.4880E-02	
	IXY	= -1.0965E-01	
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	= 2.3592E-01	(AT 34.25 DEGREES TO 'X' AXIS)
	IPY	= 2.1749E-04	(AT 34.25 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		= 6.6229E-04	

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.16234E+00	1.83074E+00	-1.17140E+00	1.82498E+00
2	-1.13541E+00	1.79102E+00	-1.14603E+00	1.78397E+00
3	-1.10777E+00	1.75027E+00	-1.12060E+00	1.74190E+00
4	-1.080?2E+00	1.70864E+00	-1.09510E+00	1.69893E+00
5	-1.05215E+00	1.66630E+00	-1.06952E+00	1.65522E+00
6	-1.02417E+00	1.62318E+00	-1.04384E+00	1.61080E+00
7	-9.96358E-01	1.57934E+00	-1.01808E+00	1.56564E+00
8	-9.67849E-01	1.53492E+00	-9.92210E-01	1.51984E+00
9	-9.39515E-01	1.48991E+00	-9.66236E-01	1.47351E+00
10	-9.11168E-01	1.44435E+00	-9.40150E-01	1.42663E+00

POINT NO	XS	YS	XP	YP
11	-8.82507E-01	1.39836E+00	-9.13950E-01	1.37927E+00
12	-8.53638E-01	1.35197E+00	-8.87629E-01	1.33152E+00
13	-8.25353E-01	1.30521E+00	-8.61184E-01	1.28344E+00
14	-7.96167E-01	1.25818E+00	-8.34613E-01	1.23505E+00
15	-7.67177E-01	1.21093E+00	-8.07913E-01	1.18642E+00
16	-7.38091E-01	1.16358E+00	-7.81082E-01	1.13764E+00
17	-7.08512E-01	1.11596E+00	-7.54118E-01	1.08874E+00
18	-6.81471E-01	1.07134E+00	-7.28718E-01	1.04283E+00
19	-6.53962E-01	1.02671E+00	-7.03212E-01	9.96934E-01
20	-6.26384E-01	9.82113E-01	-6.77599E-01	9.51061E-01
21	-5.98744E-01	9.37565E-01	-6.51879E-01	9.05244E-01
22	-5.71944E-01	8.93088E-01	-6.26052E-01	8.59508E-01
23	-5.43287E-01	8.48704E-01	-6.00118E-01	8.13881E-01
24	-5.15477E-01	8.04451E-01	-5.74078E-01	7.68383E-01
25	-4.87617E-01	7.63354E-01	-5.47933E-01	7.23034E-01
26	-4.59711E-01	7.16427E-01	-5.21683E-01	6.77869E-01
27	-4.31763E-01	6.72650E-01	-4.95330E-01	6.32915E-01
28	-4.03778E-01	6.23151E-01	-4.68875E-01	5.88191E-01
29	-3.75760E-01	5.85875E-01	-4.42319E-01	5.43704E-01
30	-3.47711E-01	5.42871E-01	-4.15666E-01	4.99481E-01
31	-3.19638E-01	5.03145E-01	-3.88915E-01	4.55563E-01
32	-2.91545E-01	4.57730E-01	-3.62069E-01	4.11971E-01
33	-2.63436E-01	4.15595E-01	-3.35130E-01	3.68727E-01
34	-2.36932E-01	3.76230E-01	-3.09665E-01	3.28274E-01
35	-2.19412E-01	3.37137E-01	-2.84121E-01	2.88125E-01
36	-1.83851E-01	2.98302E-01	-2.58504E-01	2.48276E-01
37	-1.57293E-01	2.59703E-01	-2.32818E-01	2.08715E-01
38	-1.38772E-01	2.21317E-01	-2.07068E-01	1.69429E-01
39	-1.04112E-01	1.83147E-01	-1.81260E-01	1.30408E-01
40	-7.75189E-02	1.45184E-01	-1.55397E-01	9.16293E-02
41	-5.39251E-02	1.07416E-01	-1.29484E-01	5.30744E-02
42	-2.43346E-02	6.98284E-02	-1.03526E-01	1.47464E-02
43	2.24651E-03	3.24871E-02	-7.75278E-02	-2.33629E-02
44	2.88213E-02	-4.87061E-03	-5.14925E-02	-6.12652E-02
45	5.53733E-02	-4.23159E-02	-2.54244E-02	-9.89738E-02
46	8.19190E-02	-7.93416E-02	6.72655E-04	-1.36502E-01
47	1.08437E-01	-1.15951E-01	2.67947E-02	-1.73869E-01
48	1.34931E-01	-1.52762E-01	5.29381E-02	-2.11093E-01
49	1.61396E-01	-1.89483E-01	7.90993E-02	-2.48175E-01
50	1.88753E-01	-2.27415E-01	1.06201E-01	-2.86428E-01
51	2.14962E-01	-2.65253E-01	1.33325E-01	-3.24542E-01
52	2.43316E-01	-3.02970E-01	1.60468E-01	-3.62497E-01
53	2.70512E-01	-3.43546E-01	1.87627E-01	-4.00288E-01
54	2.97647E-01	-3.77966E-01	2.14797E-01	-4.37908E-01
55	3.24716E-01	-4.15228E-01	2.41976E-01	-4.75329E-01
56	3.51712E-01	-4.52313E-01	2.69165E-01	-5.12529E-01
57	3.78624E-01	-4.89227E-01	2.96367E-01	-5.49487E-01
58	4.05443E-01	-5.25939E-01	3.23586E-01	-5.86188E-01
59	4.32159E-01	-5.62435E-01	3.50825E-01	-6.22630E-01
60	4.58763E-01	-5.98708E-01	3.78089E-01	-6.58782E-01
61	4.85246E-01	-6.34772E-01	4.05379E-01	-6.94609E-01
62	5.11599E-01	-6.71622E-01	4.32701E-01	-7.30088E-01
63	5.37817E-01	-7.06218E-01	4.60056E-01	-7.65265E-01
64	5.63891E-01	-7.41554E-01	4.87448E-01	-7.99967E-01
65	5.89816E-01	-7.76599E-01	5.14878E-01	-8.34344E-01
66	6.18922E-01	-8.15931E-01	5.45908E-01	-8.72658E-01
67	6.47840E-01	-8.54951E-01	5.76975E-01	-9.10415E-01

POINT NO	XS	YS	XP	YF
68	6.76559E-01	-8.93687E-01	6.08085E-01	-9.47691E-01
69	7.05067E-01	-9.32246E-01	6.39242E-01	-9.84475E-01
70	7.33358E-01	-9.70598E-01	6.70448E-01	-1.02076E+00
71	7.61420E-01	-1.00877E+00	7.01708E-01	-1.05664E+00
72	7.89239E-01	-1.04686E+00	7.33029E-01	-1.09208E+00
73	8.16809E-01	-1.08484E+00	7.64412E-01	-1.12709E+00
74	8.44113E-01	-1.12275E+00	7.95864E-01	-1.16177E+00
75	8.71138E-01	-1.16065E+00	8.27393E-01	-1.19606E+00
76	8.97873E-01	-1.19855E+00	8.59002E-01	-1.23002E+00
77	9.24300E-01	-1.23648E+00	8.90699E-01	-1.26368E+00
78	9.50402E-01	-1.27448E+00	9.22494E-01	-1.29704E+00
79	9.76165E-01	-1.31257E+00	9.54389E-01	-1.33013E+00
80	1.00157E+00	-1.35079E+00	9.86397E-01	-1.36298E+00
81	1.02659E+00	-1.38915E+00	1.01853E+00	-1.39561E+00

POINT NO	XSEMI	YSEMI
1	-1.17140E+00	1.82498E+00
2	-1.17165E+00	1.82542E+00
3	-1.17185E+00	1.82587E+00
4	-1.17200E+00	1.82635E+00
5	-1.17210E+00	1.82685E+00
6	-1.17215E+00	1.82736E+00
7	-1.17214E+00	1.82787E+00
8	-1.17208E+00	1.82839E+00
9	-1.17196E+00	1.82889E+00
10	-1.17179E+00	1.82939E+00
11	-1.17157E+00	1.82987E+00
12	-1.17130E+00	1.83033E+00
13	-1.17098E+00	1.83076E+00
14	-1.17063E+00	1.83116E+00
15	-1.17023E+00	1.83152E+00
16	-1.16981E+00	1.83184E+00
17	-1.16935E+00	1.83212E+00
18	-1.16887E+00	1.83235E+00
19	-1.16837E+00	1.83254E+00
20	-1.16786E+00	1.83267E+00
21	-1.16734E+00	1.83275E+00
22	-1.16682E+00	1.83277E+00
23	-1.16630E+00	1.83275E+00
24	-1.16579E+00	1.83266E+00
25	-1.16530E+00	1.83253E+00
26	-1.16483E+00	1.83235E+00
27	-1.16438E+00	1.83211E+00
28	-1.16397E+00	1.83183E+00
29	-1.16359E+00	1.83151E+00
30	-1.16324E+00	1.83114E+00
31	-1.16294E+00	1.83074E+00

SECTION NUMBER 13   'Z' =   8.5000

SECTION PROPERTIES	SECTION AREA		= 2.5364E-01
	LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	= 2.8855E-03
		YBAR	= -1.6550E-03
	SECOND MOMENTS OF AREA ABOUT CENTROID	IX	= 1.5277E-01
		IY	= 5.4245E-02
		IXY	= -9.9906E-02
	PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	= 2.0689E-01 (AT 3[illegible].77 DEGREES TO 'X' AXIS)
		IPY	= 1.1587E-04 (AT 3[illegible].77 DEGREES TO 'Y' AXIS)
	TORSIONAL CONSTANT		= 5.3863E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-1.04131E+00	1.85374E+00	-1.04948E+00	1.84852E+00
2	-1.01616E+00	1.81436E+00	-1.02640E+00	1.80809E+00
3	-9.90333E-01	1.77356E+00	-1.00325E+00	1.76622E+00
4	-9.656[illegible]8E-01	1.73168E+00	-9.80130E-01	1.72316E+00
5	-9.41169E-01	1.68890E+00	-9.56908E-01	1.67926E+00
6	-9.14632E-01	1.64511E+00	-9.33609E-01	1.63443E+00
7	-8.88984E-01	1.60057E+00	-9.10225E-01	1.58872E+00
8	-8.63218E-01	1.55536E+00	-8.86748E-01	1.54238E+00
9	-8.37344E-01	1.50944E+00	-8.63166E-01	1.49540E+00
10	-8.11358E-01	1.46302E+00	-8.39475E-01	1.44781E+00
11	-7.85256E-01	1.41615E+00	-8.15671E-01	1.39979E+00
12	-7.59049E-01	1.36884E+00	-7.91745E-01	1.35140E+00
13	-7.32733E-01	1.32125E+00	-7.67696E-01	1.30263E+00
14	-7.06312E-01	1.27341E+00	-7.43522E-01	1.25362E+00
15	-6.79793E-01	1.22536E+00	-7.19218E-01	1.20444E+00
16	-6.53178E-01	1.17721E+00	-6.94783E-01	1.15511E+00
17	-6.26472E-01	1.12900E+00	-6.70218E-01	1.10571E+00
18	-6.03975E-01	1.08312E+00	-6.46722E-01	1.05871E+00
19	-5.75411E-01	1.03727E+00	-6.23122E-01	1.01173E+00
20	-5.49753E-01	9.91449E-01	-5.99419E-01	9.64794E-01
21	-5.24393E-01	9.45603E-01	-5.75615E-01	9.17917E-01
22	-4.98357E-01	8.99988E-01	-5.51711E-01	8.71108E-01
23	-4.72565E-01	8.54363E-01	-5.27709E-01	8.24389E-01
24	-4.46728E-01	8.08830E-01	-5.03609E-01	7.77783E-01
25	-4.20048E-01	7.63431E-01	-4.79413E-01	7.31296E-01
26	-3.94929E-01	7.18177E-01	-4.55123E-01	6.84944E-01
27	-3.68976E-01	6.73052E-01	-4.30740E-01	6.38772E-01
28	-3.42994E-01	6.28114E-01	-4.06266E-01	5.92830E-01
29	-3.16986E-01	5.83406E-01	-3.81701E-01	5.47023E-01
30	-2.90955E-01	5.38922E-01	-3.57049E-01	5.01471E-01
31	-2.64916E-01	4.94650E-01	-3.32311E-01	4.56198E-01
32	-2.38848E-01	4.50680E-01	-3.07486E-01	4.11229E-01
33	-2.12778E-01	4.07020E-01	-2.82582E-01	3.66536E-01
34	-1.89429E-01	3.68198E-01	-2.60216E-01	3.26789E-01
35	-1.66163E-01	3.29592E-01	-2.37789E-01	2.87319E-01

POINT NO	XS	YS	XP	YP
36	-1.42682E-01	2.91178E-01	-2.15394E-01	2.48089E-01
37	-1.19230E-01	2.52952E-01	-1.92765E-01	2.09092E-01
38	-9.54918E-02	2.149[illegible]6E-01	-1.73178E-01	1.703[illegible]9E-01
39	-7.24866E-02	1.77025E-01	-1.47545E-01	1.31717E-01
40	-4.93811E-02	1.39299E-01	-1.24871E-01	9.33063E-02
41	-2.56774E-02	1.01686E-01	-1.02159E-01	5.50736E-02
42	-2.27871E-03	6.41942E-02	-7.94135E-02	1.69955E-02
43	2.11117E-02	2.67926E-02	-5.66377E-02	-2.09357E-02
44	4.449[illegible]7E-02	-1.05337E-02	-3.38349E-02	-5.87391E-02
45	6.79550E-02	-4.77873E-02	-1.10085E-02	-9.64315E-02
46	9.12214E-02	-8.51153E-02	1.18383E-02	-1.34032E-01
47	1.14527E-01	-1.22205E-01	3.47123E-02	-1.71560E-01
48	1.37827E-01	-1.59383E-01	5.75895E-02	-2.09027E-01
49	1.61130E-01	-1.96565E-01	8.04699E-02	-2.46447E-01
50	1.84997E-01	-2.34654E-01	1.03926E-01	-2.84741E-01
51	2.08844E-01	-2.72728E-01	1.27397E-01	-3.22996E-01
52	2.32336E-01	-3.11759E-01	1.50980E-01	-3.61190E-01
53	2.55970E-01	-3.45724E-01	1.74372E-01	-3.99330E-01
54	2.79541E-01	-3.86599E-01	1.97869E-01	-4.37310E-01
55	3.03346E-01	-4.24364E-01	2.21369E-01	-4.75195E-01
56	3.26451E-01	-4.620[illegible]3E-01	2.44869E-01	-5.12929E-01
57	3.49536E-01	-4.99512E-01	2.68370E-01	-5.53486E-01
58	3.73170E-01	-5.36859E-01	2.91877E-01	-5.87840E-01
59	3.96262E-01	-5.74019E-01	3.15396E-01	-6.24966E-01
60	4.19311E-01	-6.10980E-01	3.38931E-01	-6.61857E-01
61	4.42235E-01	-6.47728E-01	3.62487E-01	-6.98462E-01
62	4.65726E-01	-6.84257E-01	3.86069E-01	-7.34796E-01
63	4.87673E-01	-7.20581E-01	4.09680E-01	-7.70778E-01
64	5.10167E-01	-7.56677E-01	4.33326E-01	-8.06407E-01
65	5.325[illegible]2E-01	-7.92482E-01	4.57008E-01	-8.41661E-01
66	5.57319E-01	-8.32260E-01	4.83564E-01	-8.80701E-01
67	5.81919E-01	-8.71786E-01	5.10156E-01	-9.19263E-01
68	6.06234E-01	-9.11052E-01	5.36789E-01	-9.57294E-01
69	6.30431E-01	-9.50068E-01	5.63465E-01	-9.94865E-01
70	6.54317E-01	-9.88865E-01	5.90190E-01	-1.03233E+00
71	6.77938E-01	-1.02755E+00	6.16971E-01	-1.06874E+00
72	7.01287E-01	-1.066[illegible]5E+00	6.43807E-01	-1.10591E+00
73	7.24347E-01	-1.1[illegible]442E+00	6.70708E-01	-1.14094E+00
74	7.471[illegible]4E-01	-1.14272E+00	6.97679E-01	-1.17646E+00
75	7.69549E-01	-1.18094E+00	7.24723E-01	-1.21159E+00
76	7.91666E-01	-1.21910E+00	7.51846E-01	-1.24639E+00
77	8.13440E-01	-1.25723E+00	7.79056E-01	-1.28083E+00
78	8.34860E-01	-1.29535E+00	8.06359E-01	-1.31492E+00
79	8.55911E-01	-1.33348E+00	8.33759E-01	-1.34869E+00
80	8.76577E-01	-1.37162E+00	8.61265E-01	-1.38213E+00
81	8.96846E-01	-1.40976E+00	8.88887E-01	-1.41523E+00

POINT NO	XSEMI	YSEMI
1	-1.04948E+00	1.84652E+00
2	-1.04970E+00	1.84894E+00
3	-1.04988E+00	1.84938E+00
4	-1.050[illegible]1E+00	1.84984E+00
5	-1.05019E+00	1.85031E+00
6	-1.05011E+00	1.85079E+00
7	-1.05019E+00	1.85128E+00
8	-1.050[illegible]1E+00	1.85176E+00

POINT NO	XSEMI	YSEMI
9	-1.04988E+00	1.85224E+00
10	-1.04971E+00	1.85270E+00
11	-1.04948E+00	1.85315E+00
12	-1.04921E+00	1.85357E+00
13	-1.04890E+00	1.85397E+00
14	-1.04855E+00	1.85434E+00
15	-1.04817E+00	1.85467E+00
16	-1.04776E+00	1.85497E+00
17	-1.04732E+00	1.85522E+00
18	-1.04685E+00	1.85542E+00
19	-1.04638E+00	1.85558E+00
20	-1.04589E+00	1.85569E+00
21	-1.04540E+00	1.85576E+00
22	-1.04490E+00	1.85577E+00
23	-1.04442E+00	1.85573E+00
24	-1.04394E+00	1.85563E+00
25	-1.04348E+00	1.85549E+00
26	-1.04304E+00	1.85531E+00
27	-1.04263E+00	1.85507E+00
28	-1.04224E+00	1.85480E+00
29	-1.04189E+00	1.85448E+00
30	-1.04158E+00	1.85412E+00
31	-1.04131E+00	1.85374E+00

5. STATOR GEOMETRY

The technique and computer program used to define stator airfoils were the same as used for the rotor. The only significant differences were the stacking axis location and the number and spacing of manufacturing planes. The stator stacking axis was located near the trailing edge in order to minimize acute wall intersection angles in the aft portion of the passage. However, the stator twist turned out to be so slight that this is not a critical choice. Because of the reduced span (relative to the rotor) and the more complex leading edge shape, 11 manufacturing sections were employed spaced 0.375 inch apart. The computer printout on the following pages fully defines the stator airfoils and is identical in content and format to that shown for the rotor. Superimposed plots of the stacked streamsurface sections are shown in Figure 27 and of the manufacturing sections in Figure 28. Every other manufacturing section has been eliminated from the plot to improve the clarity of the figure.

USAF - ARL(LF) ARBITRARY CAMBER LINE PROGRAM

```
TITLE                              =   STATOR, 21 STREAMLINES, FINAL DESIGN, 21 JUNE 1973
NUMBER OF STREAMSURFACES           = 21
NUMBER OF STATIONS                 =  5
NUMBER OF CONSTANT-Z PLANES        = 11
NUMBER OF BLADE DATA POINTS        =  6
NUMBER OF POINTS PER SEGMENT       = 17
NUMBER OF BLADES IN BLADE ROW      = 31
ISSAK                              =  1
IPUNCH                             =  
IFPLOT                             =  3
IPRINT                             =

ZINNER                             =  4.7510
ZOUTER                             =  8.5510
SCALE                              =  2.5910
STACKX                             = -2.4520
PLTSZE                             = 11.0710

LEADING EDGE STATION NUMBER        =  2
TRAILING EDGE STATION NUMBER       =  7
RADII SPECIFYING DEVIATION         =  2
RADII SPECIFYING INCIDENCE         =  2
SENSE OF ROTATION INDICATOR        =  1
DEVIATION CALCULATION INDEX        =  2
NUMBER OF INITIAL S/R TRIALS       = 11

SHAPE FACTOR                       =  1.5770
SOLIDITY TOLERANCE                 =   .0150

DEVIATION CURVE  1     NUMBER OF POINTS = 6     RADIUS =  5.1110

     POINT     NORMALIZED MERIDIONAL      NORMALIZED DEVIATION
                      CHORD                   DISTRIBUTION

       1             0.0000                      .1510
       2              .2000                      .2000
       3              .4000                      .1510
       4              .6000                      .2210
       5              .8000                      .3954
       6             1.0000                     1.0000
DEVIATION CURVE  2     NUMBER OF POINTS = 6     RADIUS =  6.5130

     POINT     NORMALIZED MERIDIONAL      NORMALIZED DEVIATION
                      CHORD                   DISTRIBUTION

       1             0.0000                      .1530
       2              .2000                      .1130
       3              .4000                      .1530
       4              .6000                      .2230
       5              .8000                      .3830
       6             1.0000                     1.0000

INCIDENCE AND EXTRA DEVIATION DISTRIBUTION

     INLET RADIUS     INCIDENCE     EXTRA DEVIATION

        4.6400          5.000           6.991
```

6.5000 8.103 0.037

STREAMSURFACE GEOMETRY SPECIFICATION

COMPUTING STATION 1 NUMBER OF DESCRIBING POINTS= 4 IFANGS(1)= 0

DESCRIPTION X	DESCRIPTION R	STREAMLINE NUMBER	RADII	AIR ANGLE
-5.5203	4.5534	1	4.5534	-3.0000
-5.3591	5.2010	2	4.6437	-3.0000
-5.3000	5.8810	3	4.8673	-3.0000
-5.7801	8.5010	4	5.0167	-3.0000
		5	5.1791	-3.0000
		6	5.3541	-3.0000
		7	5.5411	-3.0000
		8	5.7335	-3.0000
		9	5.9431	-3.0000
		10	6.1496	-3.0000
		11	6.3726	-3.0000
		12	6.5971	-3.0000
		13	6.8382	-3.0000
		14	7.0813	-3.0000
		15	7.3438	-3.0000
		16	7.6254	-3.0000
		17	7.8591	-3.0000
		18	8.0321	-3.0000
		19	8.1848	-3.0000
		20	8.3383	-3.0000
		21	8.5331	-3.0000

COMPUTING STATION 2 NUMBER OF DESCRIBING POINTS= 4 IFANGS(2)= 5

DESCRIPTION X	DESCRIPTION R	STREAMLINE NUMBER	RADII	AIR ANGLE
-5.3750	4.6435	1	4.6435	53.7601
-5.1250	5.2510	2	4.7741	49.9162
-5.1800	5.8210	3	4.9663	47.7839
-5.2800	8.5010	4	5.1154	45.5125
		5	5.2777	45.2588
		6	5.4535	44.3812
		7	5.6322	42.9995
		8	5.8222	42.3156
		9	6.0291	41.1306
		10	6.2257	41.3580
		11	6.4391	39.7156
		12	6.6603	33.2157
		13	6.8592	35.8718
		14	7.1273	35.7764
		15	7.3754	36.7609
		16	7.6346	39.1155
		17	7.9065	39.8615
		18	8.0481	41.4651
		19	8.1937	41.2111
		20	8.3463	42.1412
		21	8.5021	43.2063

COMPUTING STATION 3 NUMBER OF DESCRIBING POINTS= 4 IFANGS(3)= 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-4.7700	4.9751	1	4.9751	33.3150
-4.6400	5.5000	2	5.0356	33.1223
-4.5800	5.8200	3	5.2046	32.6662
-4.7700	8.5000	4	5.3215	32.4131
		5	5.4561	32.1299
		6	5.6057	31.7800
		7	5.7681	31.3643
		8	5.9416	30.9069
		9	6.1251	30.4507
		10	6.3178	30.0468
		11	6.5194	29.7140
		12	6.7298	29.4607
		13	6.9494	29.2871
		14	7.1786	29.1955
		15	7.4181	29.2164
		16	7.6690	29.4047
		17	7.932	29.8014
		18	8.0685	30.0983
		19	8.2084	30.4630
		20	8.3521	30.9288
		21	8.5000	31.4865

COMPUTING STATION 4 NUMBER OF DESCRIBING POINTS= 4 IFANGS(4)= 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-4.3000	5.1880	1	5.188	22.9016
-4.2300	5.6500	2	5.2378	22.8171
-4.2000	6.0000	3	5.3805	22.5972
-4.3000	8.5000	4	5.4817	22.4547
		5	5.5998	22.2882
		6	5.7329	22.0913
		7	5.8795	21.8593
		8	6.0384	21.6068
		9	6.2086	21.3659
		10	6.3893	21.1694
		11	6.5804	21.0267
		12	6.7816	20.9379
		13	6.9932	20.9012
		14	7.2154	20.9143
		15	7.4488	20.9819
		16	7.6936	21.1131
		17	7.9503	21.2972
		18	8.0831	21.4033
		19	8.2190	21.5297
		20	8.3579	21.6825
		21	8.5000	21.8604

COMPUTING STATION 5 NUMBER OF DESCRIBING POINTS= 2 IFANGS(5)= 1

DESCRIPTION X	DESCRIPTION R	STREAMLINE NUMBER	RADII	AIR ANGLE
-3.8000	5.3756	1	5.3756	14.0018
-3.8000	6.3756	2	5.4179	13.9869
		3	5.5384	13.9500
		4	5.6265	13.9181
		5	5.7314	13.8614
		6	5.8515	13.7635
		7	5.9857	13.6265
		8	6.1328	13.4687
		9	6.2918	13.3215
		10	6.4621	13.2230
		11	6.6435	13.1825
		12	6.8358	13.1908
		13	7.0393	13.2310
		14	7.2541	13.2845
		15	7.4804	13.3566
		16	7.7183	13.4667
		17	7.9677	13.6354
		18	8.0966	13.7484
		19	8.2284	13.8841
		20	8.3629	14.0417
		21	8.5003	14.2173

COMPUTING STATION 6 NUMBER OF DESCRIBING POINTS= 2 IFANGS(6)= 1

DESCRIPTION X	DESCRIPTION R	STREAMLINE NUMBER	RADII	AIR ANGLE
-3.3588	5.5125	1	5.5125	6.7908
-3.2838	8.5030	2	5.5517	6.7815
		3	5.6664	6.7539
		4	5.7499	6.7284
		5	5.8492	6.6918
		6	5.9632	6.6424
		7	6.0905	6.5841
		8	6.2382	6.5223
		9	6.3813	6.4694
		10	6.5432	6.4389
		11	6.7163	6.4351
		12	6.8996	6.4549
		13	7.0943	6.4927
		14	7.3002	6.5421
		15	7.5176	6.6065
		16	7.7465	6.6949
		17	7.9867	6.8177
		18	8.1109	6.8958
		19	8.2380	6.9854
		20	8.3677	7.0055
		21	8.5000	7.1941

COMPUTING STATION 7   NUMBER OF DESCRIBING POINTS= 2   IFANGS(7)= 1

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-2.8500	5.6314	1	5.6314	0.0000
-2.5675	8.5000	2	5.6689	0.0000
		3	5.7765	0.0000
		4	5.858[illegible]	0.0000
		5	5.9526	0.0000
		6	6.0608	0.0000
		7	6.1817	0.0000
		8	6.3142	0.0000
		9	6.4578	0.0000
		10	6.6122	0.0000
		11	6.7774	0.0000
		12	6.9535	0.0000
		13	7.1406	0.0000
		14	7.3387	0.0000
		15	7.5481	0.0000
		16	7.7689	0.0000
		17	8.0014	0.0000
		18	8.1219	0.0000
		19	8.2452	0.0000
		20	8.3713	0.0000
		21	8.5000	0.0000

COMPUTING STATION 8   NUMBER OF DESCRIBING POINTS= 2   IFANGS(8)= 0

DESCRIPTION X	R	STREAMLINE NUMBER	RADII	AIR ANGLE
-2.0000	5.7569	1	5.7569	-0.0000
-2.0000	6.7569	2	5.7917	-0.0000
		3	5.8931	-0.0000
		4	5.9673	-0.0000
		5	6.0549	-0.0000
		6	6.1563	-0.0000
		7	6.269[illegible]	-0.0000
		8	6.3939	-0.0000
		9	6.5293	-0.0000
		10	6.6753	-0.0000
		11	6.8323	-0.0000
		12	7.0002	-0.0000
		13	7.1794	-0.0000
		14	7.3699	-0.0000
		15	7.5721	-0.0000
		16	7.786[illegible]	-0.0000
		17	8.0121	-0.0000
		18	8.1297	-0.0000
		19	8.2502	-0.0000
		20	8.3737	-0.0000
		21	8.5000	-0.0000

SECTION GEOMETRY SPECIFICATION

STREAMLINE NUMBER	SLD CL PT	IN.DEL S/R0	CONSID LE RD CRV	NO. ALD INFL. PTS	LE RADIUS /CHORD	MAX THICK /CHORD	TE THICK /2*CHORD	POINT OF MAX THICK	START VAL OF S/R	X STACK OFFSET	Y STACK OFFSET
1.00	0.000	-.100	0.0000	0.0000	.00189	.04000	.00189	.5000	.1000	-0.000000	-0.000000
5.00	0.000	-.100	0.0000	0.0000	.00215	.04330	.00215	.5000	.1000	-.031600	-0.000000
9.00	0.000	-.100	0.0000	0.0000	.00226	.04740	.00226	.5000	.1000	-.081400	-0.000000
13.00	0.000	-.100	0.0000	0.0000	.00229	.05210	.00229	.5000	.1000	-.148700	-0.000000
17.00	0.000	-.100	0.0000	0.0000	.00228	.05716	.00228	.5000	.1000	-.233400	-0.000000
21.00	0.000	-.100	0.0000	0.0000	.00228	.06000	.00228	.5000	.1000	-.282500	-0.000000

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 1
****

```
BETA1      = 45.765     (BLADE INLET ANGLE.)
BETA2      = -7.857     (BLADE OUTLET ANGLE.)
YZERO      =  .01189    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .04300    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .01189    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .5000     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.7248     (MERIDIONAL CHORD OF SECTION.)
```

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO A BLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.0693

STAGGER ANGLE = 23.842

CAMBER ANGLE = 53.622

SECTION AREA = .03131

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .46579
YBAR = .28431

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00028
IY = .03168
IXY = .00064

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 21.154

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00013 (AT 21.154 WITH 'X' AXIS)
IPY = .00193 (AT 21.154 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00232	0.00000	45.765	.00404	.00057	.00141	.00347	-.00141
2	.01782	.01620	44.995	.00643	.01555	.01827	.02008	.01374
3	.03361	.03158	44.215	.00872	.03057	.03471	.03665	.02846
4	.04940	.04674	43.423	.01099	.04562	.05073	.05318	.04275
5	.06519	.06148	42.621	.01322	.06072	.06634	.06967	.05662
6	.08099	.07581	41.808	.01538	.07586	.08154	.08612	.07007
7	.09678	.08973	40.986	.01749	.09105	.09633	.10252	.08313
8	.11257	.10325	40.153	.01953	.10628	.11072	.11887	.09579
9	.12837	.11638	39.312	.02153	.12156	.12470	.13518	.10806
10	.14416	.12912	38.462	.02340	.13688	.13828	.15144	.11996
11	.15995	.14147	37.633	.02522	.15226	.15146	.16765	.13148
12	.17575	.15345	36.737	.02697	.16768	.16425	.18381	.14264
13	.19154	.16505	35.864	.02863	.18315	.17665	.19993	.15345

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.20733	.17628	34.984	.03022	.19867	.18856	.21599	.16391
15	.22313	.18715	34.099	.03171	.21424	.20029	.23202	.17402
16	.23892	.19767	33.208	.03312	.22985	.21152	.24799	.18381
17	.25471	.20783	32.312	.03444	.24551	.22239	.26392	.19328
18	.26652	.21521	31.640	.03537	.25725	.23128	.27580	.20015
19	.27833	.22239	30.967	.03624	.26901	.23792	.28766	.20685
20	.29314	.22938	30.292	.03706	.28079	.24538	.29949	.21338
21	.30195	.23619	29.616	.03784	.29260	.25263	.31130	.21974
22	.31376	.24281	28.940	.03855	.30443	.25968	.32309	.22594
23	.32557	.24925	28.264	.03922	.31629	.26652	.33486	.23198
24	.33738	.25551	27.588	.03982	.32816	.27316	.34660	.23786
25	.34919	.26159	26.913	.04038	.34006	.27959	.35833	.24359
26	.36100	.26750	26.238	.04088	.35197	.28583	.37004	.24917
27	.37281	.27323	25.565	.04132	.36390	.29187	.38173	.25460
28	.38462	.27880	24.894	.04170	.37585	.29771	.39340	.25988
29	.39643	.28420	24.225	.04203	.38781	.30336	.40506	.26503
30	.40824	.28943	23.558	.04230	.39979	.30881	.41670	.27004
31	.42005	.29449	22.893	.04251	.41178	.31408	.42832	.27491
32	.43186	.29940	22.232	.04267	.42379	.31915	.43994	.27965
33	.44367	.30415	21.575	.04276	.43581	.32403	.45154	.28427
34	.45590	.30890	20.901	.04279	.44826	.32889	.46353	.28891
35	.46812	.31349	20.237	.04276	.46073	.33355	.47552	.29343
36	.48035	.31791	19.582	.04267	.47319	.33802	.48750	.29781
37	.49257	.32219	18.938	.04252	.48567	.34229	.49947	.30208
38	.50479	.32630	18.306	.04231	.49815	.34639	.51144	.30622
39	.51702	.33027	17.684	.04204	.51063	.35030	.52340	.31025
40	.52924	.33410	17.075	.04172	.52312	.35404	.53536	.31416
41	.54146	.33779	16.478	.04134	.53560	.35761	.54733	.31796
42	.55369	.34133	15.894	.04092	.54808	.36101	.55929	.32166
43	.56591	.34475	15.323	.04044	.56057	.36425	.57125	.32524
44	.57813	.34803	14.765	.03993	.57305	.36734	.58322	.32873
45	.59036	.35119	14.221	.03936	.58552	.37027	.59519	.33212
46	.60258	.35423	13.691	.03875	.59800	.37305	.60717	.33540
47	.61481	.35715	13.176	.03810	.61046	.37570	.61915	.33860
48	.62793	.35995	12.676	.03741	.62292	.37820	.63113	.34171
49	.63925	.36265	12.190	.03668	.63538	.38058	.64313	.34472
50	.65002	.36493	11.762	.03601	.64635	.38256	.65369	.34731
51	.66078	.36713	11.320	.03530	.65732	.38444	.66425	.34982
52	.67155	.36924	10.864	.03457	.66829	.38622	.67481	.35226
53	.68232	.37126	10.394	.03382	.67926	.38790	.68537	.35463
54	.69308	.37319	9.909	.03304	.69024	.38946	.69592	.35692
55	.70385	.37502	9.410	.03224	.70121	.39092	.70648	.35912
56	.71461	.37676	8.896	.03141	.71218	.39227	.71704	.36124
57	.72538	.37839	8.368	.03056	.72316	.39351	.72760	.36328
58	.73614	.37992	7.826	.02969	.73412	.39463	.73817	.36522
59	.74691	.38135	7.269	.02880	.74509	.39563	.74873	.36707
60	.75768	.38267	6.697	.02789	.75605	.39652	.75930	.36882
61	.76844	.38388	6.111	.02696	.76701	.39728	.76986	.37048
62	.77921	.38497	5.511	.02601	.77796	.39792	.78046	.37203
63	.78997	.38596	4.896	.02585	.78890	.39844	.79104	.37348
64	.80074	.38682	4.267	.02407	.79984	.39882	.80163	.37481
65	.81150	.38756	3.623	.02308	.81078	.39908	.81225	.37604
66	.82327	.38823	2.912	.02198	.82271	.39921	.82383	.37726
67	.83503	.38876	2.198	.02086	.83463	.39918	.83543	.37834
68	.84680	.38914	1.483	.01973	.84654	.39900	.84705	.37928

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.87032	.38945	.048	.01742	.87032	.39816	.87033	.38074
71	.88209	.38939	-.670	.01625	.88218	.39751	.88199	.38126
72	.89385	.38917	-1.390	.01506	.89403	.39670	.89367	.38165
73	.90561	.38882	-2.109	.01387	.90587	.39574	.90536	.38189
74	.91738	.38831	-2.829	.01266	.91769	.39463	.91707	.38198
75	.92914	.38765	-3.549	.01145	.92950	.39337	.92879	.38194
76	.94091	.38685	-4.269	.01023	.94129	.39195	.94052	.38175
77	.95267	.38590	-4.989	.00900	.95306	.39038	.95228	.38141
78	.96443	.38480	-5.707	.00777	.96482	.38866	.96405	.38093
79	.97620	.38354	-6.425	.00653	.97656	.38679	.97583	.38030
80	.98796	.38215	-7.142	.00529	.98829	.38477	.98763	.37952
81	.99972	.38060	-7.857	.00404	1.00000	.38260	.99945	.37859

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 2

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BETA1     = 45.136      (BLADE INLET ANGLE.)
BETA2     = -7.844      (BLADE OUTLET ANGLE.)
YZERO     =  .03196     (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T         =  .04078     (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE      =  .03196     (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z         =  .5300      (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD      = 2.6687      (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0659

STAGGER ANGLE = 20.284

CAMBER ANGLE = 52.880

SECTION AREA = .03168

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .46739
YBAR = .27673

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00326
IY = .00176
IXY = .00063

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 20.561

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00333 (AT 20.561 WITH 'X' AXIS)
IPY = .00194 (AT 20.561 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00209	0.00000	45.136	.00419	.00061	.00148	.00357	-.00148
2	.01736	.01509	44.269	.00647	.01510	.01740	.01962	.01277
3	.03263	.02977	43.493	.00874	.02962	.03294	.03564	.02660
4	.04791	.04406	42.709	.01095	.04419	.04808	.05161	.04004
5	.06317	.05796	41.918	.01312	.05878	.06284	.06755	.05308
6	.07844	.07148	41.121	.01523	.07343	.07722	.08344	.06574
7	.09373	.08462	40.317	.01730	.08811	.09121	.09930	.07803
8	.10897	.09739	39.507	.01930	.10283	.10484	.11511	.08995
9	.12424	.10980	38.693	.02124	.11763	.11809	.13088	.10151
10	.13951	.12185	37.874	.02311	.13242	.13097	.14660	.11273
11	.15478	.13355	37.051	.02491	.14727	.14349	.16228	.12361
12	.17005	.14491	36.225	.02664	.16217	.15565	.17792	.13416
13	.18531	.15593	35.397	.02833	.17712	.16746	.19351	.14439

POINT NUMBER	M E A N L I N E D A T A X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.20158	.16661	34.568	.02988	.19211	.17891	.20906	.15431
15	.21595	.17697	33.738	.03139	.20714	.19002	.22457	.16392
16	.23112	.18701	32.905	.03281	.22221	.20078	.24003	.17323
17	.24633	.19673	32.079	.03415	.23732	.21120	.25546	.18226
18	.25818	.20493	31.437	.03513	.24902	.21902	.26734	.18905
19	.26998	.21115	30.792	.03606	.26075	.22664	.27921	.19566
20	.28177	.21809	30.143	.03694	.27250	.23406	.29105	.20212
21	.29357	.22485	29.492	.03776	.28427	.24129	.30286	.20842
22	.30536	.23143	28.837	.03853	.29607	.24831	.31466	.21456
23	.31716	.23784	28.181	.03925	.30789	.25514	.32643	.22054
24	.32896	.24407	27.521	.03992	.31973	.26177	.33818	.22637
25	.34075	.25013	26.860	.04052	.33160	.26821	.34991	.23206
26	.35255	.25602	26.196	.04108	.34348	.27445	.36161	.23759
27	.36434	.26174	25.531	.04158	.35538	.28050	.37330	.24298
28	.37614	.26729	24.865	.04202	.36730	.28635	.38497	.24823
29	.38793	.27267	24.197	.04240	.37924	.29201	.39662	.25334
30	.39973	.27789	23.529	.04273	.39120	.29748	.40826	.25830
31	.41152	.28295	22.860	.04299	.40317	.30276	.41987	.26314
32	.42332	.28784	22.191	.04320	.41516	.30784	.43148	.26784
33	.43511	.29257	21.521	.04335	.42716	.31273	.44307	.27240
34	.44734	.29731	20.833	.04344	.43962	.31761	.45507	.27700
35	.45957	.30188	20.156	.04347	.45208	.32228	.46706	.28147
36	.47183	.30628	19.492	.04343	.46405	.32675	.47904	.28581
37	.48402	.31053	18.841	.04333	.47703	.33134	.49102	.29003
38	.49625	.31463	18.203	.04316	.48951	.33513	.50299	.29413
39	.50848	.31858	17.579	.04294	.50203	.33905	.51496	.29811
40	.52071	.32238	16.969	.04266	.51448	.34278	.52693	.30198
41	.53234	.32604	16.374	.04233	.52697	.34635	.538[illegible]0	.30574
42	.54516	.32957	15.795	.04194	.53946	.34974	.55087	.30939
43	.55739	.33296	15.231	.04153	.55194	.35298	.56284	.31294
44	.56962	.33623	14.683	.04101	.56442	.35606	.57482	.31639
45	.58185	.33937	14.152	.04048	.57690	.35899	.58679	.31975
46	.59417	.34239	13.637	.03989	.58937	.36178	.59878	.32301
47	.60633	.34530	13.143	.03927	.60184	.36442	.61076	.32618
48	.61853	.34811	12.661	.03861	.61430	.36694	.62276	.32927
49	.63076	.35080	12.193	.03789	.62675	.36932	.63476	.33228
50	.64178	.35314	11.783	.03722	.63798	.37136	.64556	.33492
51	.65279	.35540	11.352	.03651	.64920	.37329	.65639	.33750
52	.66381	.35756	10.906	.03578	.66043	.37513	.66720	.34000
53	.67483	.35964	10.444	.03501	.67166	.37686	.67801	.34242
54	.68585	.36163	9.957	.03422	.68289	.37848	.68881	.34477
55	.69687	.36351	9.475	.03340	.69412	.37999	.69962	.34704
56	.70789	.36530	8.967	.03256	.70535	.38138	.71043	.34922
57	.71891	.36699	8.444	.03169	.71658	.38266	.72124	.35132
58	.72993	.36857	7.904	.03080	.72781	.38383	.73205	.35332
59	.74095	.37005	7.350	.02989	.73903	.38487	.74286	.35523
60	.75197	.37141	6.779	.02895	.75026	.38579	.75367	.35704
61	.76298	.37267	6.193	.02800	.76147	.38658	.76449	.35875
62	.77400	.37380	5.591	.02702	.77269	.38725	.77532	.36036
63	.78502	.37482	4.974	.02603	.78389	.38779	.78615	.36186
64	.79634	.37572	4.341	.02502	.79509	.38820	.79699	.36325
65	.80736	.37650	3.693	.02399	.80629	.38847	.80783	.36453
66	.81910	.37720	2.975	.02285	.81851	.38851	.81969	.36579
67	.83114	.37775	2.256	.02169	.83072	.38858	.83157	.36691
68	.84318	.37815	1.535	.02051	.84291	.38840	.84346	.36789
69	.85522	.37839	.814	.01932	.85509	.38805	.85536	.36873

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.86726	.37849	.091	.01812	.86725	.38755	.86728	.36943
71	.87931	.37843	-.632	.01690	.87940	.38688	.87921	.36998
72	.89135	.37822	-1.355	.01567	.89153	.38605	.89116	.37039
73	.90339	.37786	-2.079	.01442	.90365	.38507	.90313	.37065
74	.91543	.37735	-2.802	.01317	.91575	.38393	.91511	.37077
75	.92747	.37668	-3.525	.01191	.92784	[illegible]	.92710	.37074
76	.93951	.37586	-4.248	.01063	.93990	[illegible]	[illegible]	.37056
77	.95155	.37489	-4.969	.00936	.95196	[illegible]	[illegible]	.37023
78	.96359	.37377	-5.690	.00807	.96399	[illegible]	[illegible]	.36976
79	.97563	.37249	-6.413	.00678	[illegible]	[illegible]	[illegible]	.36913
80	.98767	.37107	-7.128	.00548	[illegible]	[illegible]	[illegible]	.36835
81	.99971	.36948	-7.844	.00419	[illegible]	[illegible]	[illegible]	.36741

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                    STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER  3
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   BETA1        = 43.207     (BLADE INLET ANGLE.)
   BETA2        = -7.810     (BLADE OUTLET ANGLE.)
   YZERO        =   .00203   (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
   T            =   .04158   (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
   YONE         =   .00203   (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
   Z            =   .5000    (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
   CORD         = 2.5375     (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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   BLADE CHORD    = 1.0574

   STAGGER ANGLE  = 18.996

   CAMBER ANGLE   = 51.017

   SECTION AREA   = .03172

   LOCATION OF CENTROID RELATIVE TO LEADING EDGE

           XBAR =  .47087
           YBAR =  .26918

   SECOND MOMENTS OF AREA ABOUT CENTROID

           IX   =  .00523
           IY   =  .03170
           IXY  =  .00358

   ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 19.230

   PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

           IPX  = .00803      (AT 19.200 WITH 'X' AXIS)
           IPY  = .00191      (AT 19.230 WITH 'Y' AXIS)
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00215	0.00080	43.207	.00433	.00068	.00157	.00362	-.00157
2	.01623	.01305	42.461	.00639	.01407	.01541	.01838	.01069
3	.03033	.02576	41.713	.00846	.02749	.02892	.03311	.02261
4	.04438	.03815	40.963	.01049	.04094	.04210	.04781	.03419
5	.05845	.05021	40.214	.01248	.05442	.05497	.06248	.04544
6	.07253	.06195	39.464	.01443	.06794	.06752	.07711	.05638
7	.08660	.07338	38.716	.01634	.08149	.07976	.09171	.06701
8	.10068	.08452	37.973	.01825	.09508	.09169	.10671	.07734
9	.11475	.09536	37.227	.02002	.10870	.10333	.12081	.08739
10	.12883	.10591	36.488	.02178	.12235	.11466	.13531	.09715
11	.14291	.11618	35.754	.02349	.13604	.12571	.14977	.10665
12	.15698	.12618	35.026	.02514	.14977	.13647	.16423	.11589
13	.17136	.13591	34.334	.02674	.16352	.14696	.17859	.12487

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.18523	.14539	33.590	.02827	.17731	.15716	.19295	.13361
15	.19921	.15461	32.885	.02974	.19113	.16710	.20728	.14212
16	.21329	.16359	32.189	.03116	.20498	.17678	.22158	.15041
17	.22736	.17224	31.503	.03250	.21887	.18619	.23585	.15848
18	.23915	.17942	30.934	.03357	.23043	.19392	.24768	.16503
19	.25075	.18635	30.357	.03459	.24201	.20120	.25949	.17143
20	.26245	.19313	29.771	.03556	.25362	.20856	.27128	.17769
21	.27414	.19976	29.177	.03649	.26525	.21566	.28304	.18381
22	.28584	.20619	28.574	.03736	.27691	.22259	.29478	.18978
23	.29754	.21248	27.962	.03818	.28859	.22934	.30649	.19561
24	.30923	.21861	27.343	.03895	.30027	.23591	.31818	.20130
25	.32093	.22457	26.714	.03967	.31201	.24229	.32985	.20685
26	.33263	.23036	26.077	.04034	.32376	.24849	.34149	.21226
27	.34432	.23602	25.432	.04095	.33553	.25451	.35312	.21753
28	.35602	.24150	24.778	.04151	.34732	.26035	.36472	.22266
29	.36772	.24682	24.115	.04201	.35913	.26599	.37630	.22765
30	.37941	.25197	23.443	.04246	.37097	.27145	.38786	.23250
31	.39111	.25696	22.763	.04285	.38282	.27672	.39940	.23721
32	.40281	.26179	22.076	.04318	.39469	.28180	.41092	.24178
33	.41451	.26645	21.376	.04346	.40658	.28668	.42242	.24622
34	.42664	.27111	20.658	.04368	.41894	.29155	.43435	.25068
35	.43873	.27561	19.955	.04384	.43133	.29621	.44627	.25503
36	.45093	.27993	19.270	.04394	.44368	.30067	.45818	.25929
37	.46307	.28410	18.602	.04397	.45606	.30493	.47008	.26326
38	.47521	.28811	17.953	.04393	.46844	.30930	.48198	.26721
39	.48735	.29197	17.324	.04383	.48082	.31249	.49388	.27105
40	.49949	.29568	16.714	.04367	.49321	.31660	.50577	.27477
41	.51163	.29926	16.126	.04345	.50560	.32013	.51767	.27839
42	.52379	.30271	15.555	.04319	.51798	.32351	.52957	.28191
43	.53592	.30602	15.012	.04285	.53037	.32672	.54147	.28533
44	.54806	.30922	14.489	.04246	.54275	.32978	.55337	.28866
45	.56021	.31230	13.987	.04203	.55512	.33269	.56528	.29191
46	.57234	.31527	13.509	.04154	.56749	.33547	.57719	.29508
47	.58448	.31814	13.054	.04101	.57985	.33811	.58911	.29816
48	.59662	.32090	12.623	.04042	.59221	.34063	.60104	.30118
49	.60877	.32358	12.215	.03980	.60456	.34303	.61298	.30413
50	.62044	.32606	11.827	.03915	.61643	.34522	.62445	.30690
51	.63212	.32847	11.427	.03847	.62831	.34732	.63592	.30961
52	.64379	.33078	10.997	.03775	.64019	.34931	.64739	.31225
53	.65547	.33300	10.555	.03699	.65208	.35119	.65885	.31482
54	.66714	.33513	10.096	.03621	.66397	.35295	.67031	.31731
55	.67881	.33716	9.619	.03538	.67586	.35460	.68177	.31972
56	.69049	.33908	9.124	.03452	.68775	.35613	.69323	.32204
57	.70216	.34091	8.611	.03364	.69965	.35753	.70468	.32428
58	.71384	.34262	8.083	.03272	.71154	.35882	.71614	.32642
59	.72551	.34422	7.531	.03177	.72343	.35997	.72760	.32847
60	.73719	.34571	6.964	.03081	.73532	.36099	.73906	.33042
61	.74886	.34707	6.378	.02981	.74721	.36188	.75052	.33226
62	.76054	.34831	5.775	.02878	.75909	.36263	.76199	.33400
63	.77221	.34943	5.151	.02774	.77097	.36325	.77346	.33562
64	.78389	.35042	4.513	.02667	.78284	.36371	.78494	.33712
65	.79556	.35127	3.855	.02559	.79473	.36404	.79642	.33851
66	.80812	.35205	3.126	.02435	.80766	.36422	.80899	.33988
67	.82108	.35267	2.395	.02314	.82063	.36423	.82157	.34111
68	.83384	.35312	1.664	.02189	.83352	.36416	.83416	.34218
69	.84660	.35341	.932	.02062	.84643	.36371	.84677	.34310

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85936	.35353	.203	.01932	.85932	.36320	.85939	.34387
71	.87212	.35350	-.533	.01832	.87220	.36250	.87203	.34449
72	.88488	.35330	-1.265	.01669	.88506	.36164	.88469	.34495
73	.89764	.35293	-1.997	.01536	.89790	.36061	.89737	.34526
74	.91039	.35241	-2.728	.01401	.91073	.35940	.91006	.34541
75	.92315	.35172	-3.458	.01264	.92354	.35803	.92277	.34541
76	.93591	.35086	-4.188	.01127	.93632	.35649	.93550	.34524
77	.94867	.34985	-4.916	.00989	.94913	.35478	.94825	.34492
78	.96143	.34867	-5.642	.00853	.96185	.35290	.96101	.34444
79	.97419	.34733	-6.367	.00713	.97458	.35086	.97380	.34380
80	.98695	.34582	-7.089	.00573	.98730	.34865	.98660	.34299
81	.99971	.34415	-7.810	.00433	1.00000	.34628	.99942	.34202

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 4
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BETA1     = 42.128     (BLADE INLET ANGLE.)
BETA2     = -7.319     (BLADE OUTLET ANGLE.)
YZERO     =  .00219    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T         =  .04241    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE      =  .00218    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z         =  .5300     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD      = 2.4455     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO A BLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD = 1.0531

STAGGER ANGLE = 18.306

CAMBER ANGLE = 49.447

SECTION AREA = .03236

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47261
YBAR = .25149

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00021
IY = .00172
IXY = .00057

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 18.461

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00013 (AT 18.461 WITH 'X' AXIS)
IPY = .00191 (AT 18.461 WITH 'Y' AXIS)

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00221	0.00330	42.128	.00442	.00073	.00154	.00369	-.00164
2	.01567	.01203	41.419	.00642	.01355	.01444	.01780	.00962
3	.02914	.02376	40.718	.00841	.02640	.02695	.03188	.02057
4	.04261	.03520	39.999	.01036	.03927	.03917	.04594	.03123
5	.05607	.04636	39.291	.01228	.05215	.05111	.05996	.04161
6	.06954	.05724	38.584	.01417	.06512	.06278	.07396	.05170
7	.08301	.06785	37.881	.01602	.07809	.07417	.08792	.06153
8	.09647	.07819	37.181	.01783	.09108	.08530	.10186	.07109
9	.10994	.08826	36.485	.01959	.10411	.09616	.11576	.08041
10	.12341	.09811	35.794	.02131	.11717	.10676	.12963	.08947
11	.13687	.10776	35.113	.02298	.13026	.11710	.14348	.09830
12	.15033	.11735	34.432	.02463	.14338	.12720	.15729	.10691
13	.16381	.12617	33.762	.02618	.15653	.13705	.17107	.11529

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17727	.13506	33.103	.02769	.16970	.14666	.18483	.12346
15	.19373	.14373	32.448	.02916	.18291	.15603	.19855	.13142
16	.20423	.15210	31.805	.03057	.19614	.16517	.21225	.13919
17	.21766	.15943	31.174	.03192	.20940	.17409	.22592	.14678
18	.22924	.16736	30.631	.03303	.22082	.18157	.23765	.15315
19	.24081	.17414	30.079	.03413	.23227	.18889	.24936	.15938
20	.25239	.18077	29.516	.03512	.24374	.19605	.26104	.16549
21	.26396	.18725	28.944	.03617	.25523	.20304	.27270	.17145
22	.27554	.19357	28.362	.03703	.26675	.20986	.28434	.17728
23	.28712	.19974	27.770	.03791	.27829	.21651	.29595	.18297
24	.29869	.20576	27.169	.03873	.28985	.22299	.30753	.18853
25	.31027	.21162	26.555	.03951	.30143	.22930	.31910	.19395
26	.32184	.21733	25.932	.04024	.31304	.23543	.33064	.19924
27	.33342	.22288	25.299	.04091	.32468	.24138	.34216	.20439
28	.34499	.22827	24.655	.04153	.33633	.24715	.35366	.20940
29	.35657	.23351	24.001	.04213	.34801	.25274	.36513	.21428
30	.36814	.23859	23.335	.04261	.35973	.25814	.37658	.21902
31	.37972	.24350	22.663	.04307	.37142	.26337	.38802	.22362
32	.39130	.24825	21.973	.04347	.38316	.26840	.39943	.22809
33	.40287	.25284	21.276	.04381	.39492	.27325	.41082	.23242
34	.41489	.25743	20.555	.04411	.40714	.27808	.42263	.23678
35	.42693	.26185	19.852	.04434	.41937	.28270	.43443	.24100
36	.43892	.26611	19.156	.04451	.43161	.28713	.44623	.24508
37	.45394	.27021	18.500	.04462	.44386	.29136	.45802	.24905
38	.46295	.27415	17.854	.04466	.45611	.29541	.46980	.25289
39	.47497	.27795	17.228	.04464	.46836	.29927	.48157	.25663
40	.48699	.28160	16.623	.04456	.48061	.30295	.49336	.26026
41	.49930	.28513	16.040	.04441	.49287	.30647	.50514	.26378
42	.51112	.28852	15.479	.04420	.50512	.30982	.51692	.26722
43	.52314	.29178	14.940	.04394	.51737	.31301	.52870	.27056
44	.53515	.29493	14.425	.04362	.52962	.31605	.54049	.27381
45	.54717	.29797	13.933	.04325	.54186	.31895	.55227	.27698
46	.55919	.30090	13.466	.04282	.55410	.32172	.56407	.28007
47	.57119	.30372	13.022	.04234	.56633	.32435	.57587	.28310
48	.58312	.30646	12.623	.04182	.57856	.32686	.58768	.28605
49	.59514	.30910	12.209	.04124	.59077	.32925	.59950	.28894
50	.60722	.31167	11.818	.04062	.60306	.33159	.61138	.29179
51	.61930	.31415	11.413	.03996	.61535	.33374	.62326	.29457
52	.63133	.31655	10.985	.03925	.62765	.33581	.63513	.29728
53	.64347	.31884	10.544	.03849	.63995	.33777	.64699	.29992
54	.65555	.32104	10.085	.03773	.65225	.33960	.65886	.30248
55	.66764	.32314	9.611	.03687	.66456	.34132	.67072	.30496
56	.67972	.32513	9.119	.03601	.67687	.34291	.68257	.30736
57	.69180	.32702	8.613	.03511	.68918	.34437	.69443	.30967
58	.70389	.32879	8.085	.03417	.70149	.34571	.70629	.31188
59	.71597	.33045	7.542	.03320	.71379	.34691	.71815	.31399
60	.72806	.33199	6.982	.03220	.72610	.34797	.73001	.31601
61	.74014	.33341	6.405	.03117	.73840	.34890	.74188	.31792
62	.75222	.33473	5.811	.03012	.75071	.34969	.75375	.31972
63	.76431	.33587	5.200	.02904	.76299	.35033	.76562	.32141
64	.77639	.33690	4.571	.02793	.77529	.35082	.77750	.32298
65	.78847	.33780	3.926	.02683	.78756	.35117	.78939	.32443
66	.80158	.33862	3.217	.02553	.80096	.35137	.80239	.32588
67	.81488	.33928	2.491	.02425	.81435	.35139	.81540	.32717
68	.82818	.33977	1.768	.02294	.82773	.35123	.82843	.32831
69	.84128	.34010	1.042	.02150	.84108	.35089	.84148	.32930

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.85448	.34025	.313	.02025	.85443	[illegible]	.85454	[illegible]
71	.86768	.34024	-.418	.01887	.86775	.34968	.86761	.33080
72	.88089	.34006	-1.151	.01748	.88106	.34880	.88071	.33132
73	.89409	.33971	-1.887	.01608	.89435	.34774	.89382	.33168
74	.90729	.33919	-2.625	.01465	.90762	.34651	.90695	.33187
75	.92049	.33850	-3.364	.01322	.92088	.34510	.92010	[illegible]
76	.93369	.33764	-4.105	.01177	.93411	.34351	.93327	.33177
77	.94689	.33660	-4.846	.01031	.94733	.34174	.94646	.33146
78	.96009	.33545	-5.589	.00885	.96053	.33980	.95966	.33099
79	.97330	.33402	-6.332	.00738	.97370	.33769	.97289	.33035
80	.98650	.33247	-7.075	.00590	.98686	.33539	.98613	.32954
81	.99970	.33074	-7.819	.00442	1.00000	.33293	.99940	.32855

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 5
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BETA1	= 41.385	(BLADE INLET ANGLE.)
BETA2	= -7.553	(BLADE OUTLET ANGLE.)
YZERO	= .00215	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .04330	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00215	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5000	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.3995	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.0493

STAGGER ANGLE = 17.666

CAMBER ANGLE = 48.938

SECTION AREA = .03247

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47439
YBAR = .24357

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00320
IY = .02174
IXY = .00 55

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 17.754

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00[illegible]3 (AT 17.754 WITH 'X' AXIS)
IPY = .03192 (AT 17.754 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00226	0.00039	41.385	.00451	.00077	.00170	.00374	-.00170
2	.01523	.01116	40.427	.00646	.01314	.01364	.01732	.00872
3	.02820	.02211	39.769	.00838	.02552	.02533	.03088	.01888
4	.04113	.03278	39.109	.01028	.03793	.03677	.04442	.02679
5	.05415	.04320	38.452	.01215	.05037	.04796	.05793	.03844
6	.06717	.05336	37.795	.01399	.06284	.05891	.07141	.04785
7	.08013	.06333	37.140	.01580	.07533	.06962	.08487	.05703
8	.09317	.07324	36.488	.01757	.08785	.08010	.09830	.06597
9	.10615	.08252	35.838	.01933	.10040	.09034	.11170	.07470
10	.11912	.09178	35.193	.02099	.11297	.10036	.12507	.08320
11	.13209	.10082	34.551	.02264	.12558	.11014	.13842	.09150
12	.14497	.10965	33.914	.02424	.13821	.11971	.15173	.09959
13	.15794	.11827	33.283	.02583	.15087	.12905	.16502	.10749

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.17092	.12668	32.658	.02731	.16355	.13818	.17829	.11519
15	.18389	.13490	32.039	.02877	.17626	.14710	.19152	.12271
16	.19687	.14292	31.427	.03018	.18900	.15580	.20473	.13005
17	.20984	.15076	30.824	.03153	.20176	.16430	.21792	.13722
18	.22121	.15748	30.293	.03265	.21297	.17158	.22946	.14337
19	.23259	.16405	29.753	.03378	.22421	.17871	.24097	.14939
20	.24396	.17048	29.204	.03484	.23547	.18568	.25246	.15527
21	.25534	.17677	28.645	.03585	.24675	.19250	.26393	.16103
22	.26672	.18291	28.076	.03682	.25805	.19915	.27536	.16666
23	.27810	.18890	27.497	.03774	.26938	.20564	.28680	.17216
24	.28947	.19475	26.908	.03861	.28073	.21196	.29820	.17753
25	.30084	.20045	26.309	.03943	.29210	.21812	.30958	.18277
26	.31222	.20600	25.700	.04021	.30350	.22411	.32093	.18788
27	.32359	.21139	25.081	.04093	.31492	.22993	.33227	.19286
28	.33497	.21664	24.451	.04160	.32636	.23558	.34358	.19771
29	.34634	.22174	23.810	.04222	.33782	.24105	.35486	.20242
30	.35772	.22668	23.160	.04279	.34930	.24635	.36613	.20701
31	.36909	.23147	22.498	.04330	.36081	.25147	.37738	.21147
32	.38047	.23610	21.827	.04376	.37233	.25642	.38860	.21579
33	.39184	.24058	21.144	.04417	.38387	.26118	.39981	.21998
34	.40368	.24508	20.437	.04453	.39590	.26594	.41145	.22421
35	.41552	.24940	19.746	.04484	.40794	.27051	.42309	.22830
36	.42735	.25358	19.372	.04508	.41999	.27488	.43472	.23227
37	.43919	.25759	18.417	.04526	.43204	.27906	.44634	.23612
38	.45103	.26146	17.781	.04538	.44410	.28307	.45796	.23986
39	.46287	.26519	17.164	.04543	.45616	.28689	.46957	.24348
40	.47470	.26877	16.567	.04542	.46823	.29054	.48118	.24701
41	.48654	.27223	15.992	.04535	.48030	.29403	.49279	.25044
42	.49838	.27556	15.435	.04521	.49236	.29735	.50440	.25377
43	.51022	.27877	14.902	.04502	.50443	.30052	.51601	.25702
44	.52206	.28186	14.390	.04476	.51649	.30354	.52762	.26018
45	.53389	.28485	13.901	.04446	.52855	.30642	.53923	.26327
46	.54573	.28772	13.434	.04413	.54061	.30917	.55085	.26628
47	.55757	.29050	12.991	.04368	.55266	.31179	.56248	.26922
48	.56941	.29319	12.571	.04322	.56470	.31428	.57411	.27210
49	.58124	.29578	12.175	.04270	.57674	.31666	.58575	.27491
50	.59374	.29844	11.763	.04211	.58945	.31905	.59804	.27782
51	.60625	.30099	11.338	.04146	.60217	.32132	.61032	.28066
52	.61875	.30345	10.899	.04077	.61489	.32346	.62260	.28343
53	.63125	.30580	10.447	.04003	.62762	.32549	.63488	.28612
54	.64375	.30806	9.982	.03924	.64035	.32738	.64715	.28873
55	.65625	.31020	9.503	.03841	.65308	.32914	.65942	.29126
56	.66875	.31224	9.011	.03754	.66581	.33078	.67169	.29370
57	.68125	.31417	8.505	.03662	.67854	.33228	.68396	.29606
58	.69375	.31598	7.986	.03567	.69127	.33364	.69623	.29832
59	.70625	.31767	7.453	.03468	.70400	.33487	.70850	.30048
60	.71875	.31925	6.907	.03366	.71673	.33595	.72078	.30254
61	.73125	.32070	6.347	.03263	.72945	.33690	.73305	.30450
62	.74375	.32203	5.773	.03151	.74217	.33770	.74534	.30636
63	.75625	.32323	5.186	.03038	.75488	.33836	.75763	.30810
64	.76875	.32431	4.586	.02923	.76759	.33887	.76992	.30973
65	.78126	.32523	3.972	.02806	.78028	.33923	.78223	.31124
66	.79491	.32610	3.290	.02674	.79414	.33945	.79568	.31275
67	.80856	.32680	2.603	.02540	.80798	.33949	.80914	.31412
68	.82221	.32734	1.901	.02402	.82181	.33934	.82261	.31533
69	.83586	.32771	1.193	.02263	.83563	.33902	.83610	.31640

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.84952	.32791	.478	.02120	.84943	.33851	.84961	.31730
71	.86317	.32793	-.246	.01976	.86321	.33781	.86313	.31805
72	.87682	.32779	-.976	.01830	.87698	.33694	.87667	.31864
73	.89047	.32747	-1.715	.01682	.89073	.33587	.89022	.31906
74	.90413	.32697	-2.460	.01532	.90445	.33462	.90380	.31932
75	.91778	.32629	-3.213	.01381	.91817	.33319	.91739	.31940
76	.93143	.32544	-3.971	.01228	.93186	.33156	.93101	.31931
77	.94508	.32440	-4.736	.01074	.94553	.32975	.94464	.31904
78	.95874	.32317	-5.508	.00920	.95918	.32775	.95829	.31860
79	.97239	.32176	-6.284	.00764	.97281	.32556	.97197	.31797
80	.98604	.32017	-7.066	.00608	.98641	.32318	.98567	.31715
81	.99969	.31838	-7.853	.00451	1.00000	.32061	.99938	.31614

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 6

BETA1	= 40.131	(BLADE INLET ANGLE.)
BETA2	= -7.938	(BLADE OUTLET ANGLE.)
YZERO	= .00219	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .04425	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00219	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5330	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.3449	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0459

STAGGER ANGLE = 17.568

CAMBER ANGLE = 48.039

SECTION AREA = .03292

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47539
YBAR = .21643

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00119
IY = .03177
IXY = .00 54

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 17.097

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00312 (AT 17.097 WITH 'X' AXIS)
IPY = .00193 (AT 17.097 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00229	9.1.900	40.131	.00458	.00081	.00175	.00377	-.00175
2	.01435	.01056	39.513	.00650	.01288	.01336	.01702	.00805
3	.02761	.02086	38.888	.00842	.02497	.02415	.03025	.01761
4	.04027	.03098	38.267	.01027	.03709	.03531	.04345	.02695
5	.05293	.04085	37.647	.01212	.04923	.04565	.05663	.03605
6	.06559	.05051	37.028	.01394	.06139	.05607	.06979	.04495
7	.07825	.05995	36.413	.01573	.07358	.06628	.08292	.05367
8	.09091	.06919	35.795	.01748	.08579	.07628	.09602	.06209
9	.10357	.07821	35.152	.01921	.09803	.08606	.10910	.07036
10	.11623	.08703	34.572	.02089	.11030	.09563	.12215	.07844
11	.12889	.09566	33.965	.02253	.12259	.10530	.13518	.08632
12	.14153	.10409	33.364	.02413	.13491	.11417	.14818	.09402
13	.15421	.11233	32.767	.02569	.14725	.12313	.16116	.10153

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16686	.12539	32.174	.02721	.15962	.13190	.17411	.10888
15	.17952	.12826	31.567	.02867	.17232	.14047	.18703	.11605
16	.19218	.13596	31.007	.03039	.18443	.14585	.19993	.12307
17	.20494	.14348	30.432	.03146	.19688	.15734	.21281	.12992
18	.21592	.14993	29.928	.03261	.20779	.16436	.22406	.13579
19	.22731	.15624	29.412	.03373	.21872	.17093	.23529	.14155
20	.23849	.16242	28.885	.03483	.22968	.17756	.24649	.14718
21	.24917	.16847	28.347	.03584	.24066	.18424	.25768	.15270
22	.26025	.17438	27.798	.03682	.25166	.19066	.26884	.15809
23	.27133	.18015	27.238	.03777	.26269	.19694	.27997	.16336
24	.28241	.18578	26.666	.03867	.27373	.20306	.29109	.16851
25	.29349	.19128	26.082	.03952	.28481	.20903	.30218	.17353
26	.30457	.19663	25.487	.04033	.29593	.21483	.31325	.17843
27	.31566	.20184	24.879	.04108	.30701	.22048	.32430	.18321
28	.32674	.20691	24.259	.04179	.31815	.22596	.33532	.18786
29	.33782	.21183	23.627	.04245	.32931	.23128	.34633	.19238
30	.34893	.21661	22.983	.04306	.34049	.23643	.35731	.19678
31	.35998	.22123	22.326	.04362	.35170	.24141	.36827	.20105
32	.37116	.22571	21.656	.04413	.36292	.24621	.37920	.20520
33	.38214	.23003	20.974	.04458	.37416	.25084	.39012	.20921
34	.39377	.23440	20.263	.04501	.38598	.25551	.40156	.21329
35	.40540	.23862	19.565	.04537	.39780	.25999	.41299	.21724
36	.41702	.24267	18.889	.04567	.40963	.26428	.42442	.22106
37	.42865	.24657	18.231	.04591	.42147	.26838	.43583	.22477
38	.44028	.25033	17.595	.04610	.43331	.27230	.44724	.22836
39	.45190	.25395	16.979	.04622	.44516	.27605	.45865	.23185
40	.46353	.25743	16.385	.04628	.45700	.27963	.47006	.23523
41	.47516	.26079	15.814	.04627	.46885	.28305	.48146	.23853
42	.48678	.26402	15.265	.04620	.48070	.28631	.49287	.24173
43	.49841	.26714	14.739	.04608	.49255	.28942	.50427	.24486
44	.51004	.27014	14.237	.04589	.50439	.29238	.51568	.24790
45	.52166	.27304	13.759	.04565	.51624	.29521	.52709	.25087
46	.53329	.27584	13.306	.04535	.52807	.29790	.53851	.25377
47	.54492	.27854	12.877	.04501	.53990	.30047	.54993	.25661
48	.55654	.28115	12.473	.04459	.55173	.30292	.56136	.25938
49	.56817	.28368	12.095	.04414	.56355	.30526	.57280	.26210
50	.58137	.28640	11.684	.04358	.57666	.30774	.58548	.26506
51	.59397	.28902	11.260	.04296	.58977	.31008	.59816	.26795
52	.60686	.29153	10.824	.04228	.60289	.31230	.61083	.27077
53	.61976	.29395	10.375	.04156	.61602	.31439	.62350	.27351
54	.63266	.29626	9.913	.04077	.62915	.31634	.63617	.27617
55	.64555	.29846	9.438	.03994	.64229	.31816	.64883	.27875
56	.65845	.30054	8.951	.03906	.65541	.31984	.66149	.28125
57	.67135	.30252	8.451	.03814	.66854	.32138	.67415	.28365
58	.68424	.30437	7.938	.03717	.68168	.32278	.68681	.28597
59	.69714	.30611	7.412	.03616	.69481	.32404	.69947	.28818
60	.71004	.30773	6.873	.03511	.70794	.32516	.71214	.29030
61	.72293	.30922	6.322	.03402	.72106	.32613	.72481	.29231
62	.73583	.31059	5.758	.03290	.73418	.32695	.73748	.29422
63	.74873	.31182	5.181	.03173	.74729	.32762	.75016	.29602
64	.76162	.31292	4.591	.03054	.76040	.32815	.76285	.29770
65	.77452	.31389	3.989	.02932	.77353	.32851	.77554	.29927
66	.78859	.31479	3.319	.02795	.78779	.32874	.78940	.30084
67	.80267	.31552	2.638	.02654	.80206	.32878	.80328	.30226
68	.81674	.31609	1.947	.02511	.81631	.32863	.81717	.30354
69	.83081	.31648	1.245	.02365	.83056	.32830	.83107	.30466

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.84488	.31670	.533	.02216	.84478	.32778	.84499	.30562
71	.85896	.31674	-.189	.02064	.85899	.32706	.85892	.30642
72	.87303	.31660	-.921	.01911	.87318	.32616	.87288	.30705
73	.88710	.31629	-1.663	.01755	.88736	.32506	.88685	.30752
74	.90118	.31579	-2.414	.01597	.90151	.32377	.90084	.30781
75	.91525	.31510	-3.174	.01438	.91565	.32228	.91485	.30792
76	.92932	.31422	-3.943	.01277	.92976	.32060	.92888	.30785
77	.94339	.31316	-4.720	.01115	.94385	.31872	.94293	.30760
78	.95747	.31190	-5.506	.00952	.95792	.31664	.95701	.30716
79	.97154	.31044	-6.299	.00788	.97197	.31436	.97111	.30653
80	.98561	.30879	-7.100	.00624	.98600	.31189	.98523	.30570
81	.99968	.30694	-7.908	.00458	1.00000	.30921	.99937	.30467

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 7

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BETA1      = 39.295     (BLADE INLET ANGLE.)
BETA2      = -7.976     (BLADE OUTLET ANGLE.)
YZERO      =  .01222    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .04526    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .01222    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .5131     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.3129     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO A BLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD     = 1.0429

STAGGER ANGLE   = 15.536

CAMBER ANGLE    = 47.261

SECTION AREA    = .03344

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

        XBAR =  .47665
        YBAR =  .23115

SECOND MOMENTS OF AREA ABOUT CENTROID

        IX   =  .00016
        IY   =  .00179
        IXY  =  .00052

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 16.488

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

        IPX  = .00012      (AT 16.488 WITH 'X' AXIS)
        IPY  = .00195      (AT 16.488 WITH 'Y' AXIS)
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POINT	MEANLINE DATA				SURFACE COORDINATE DATA			
NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
1	.00232	-.00029	39.285	.00463	.00065	.00179	.00378	-.00179
2	.01481	.01012	38.706	.00655	.01276	.01267	.01686	.00756
3	.02731	.02002	38.126	.00845	.02471	.02335	.02991	.01670
4	.03981	.02973	37.545	.01032	.03665	.03382	.04294	.02563
5	.05223	.03923	36.963	.01218	.04863	.04410	.05595	.03436
6	.06479	.04853	36.381	.01400	.06063	.05417	.06894	.04290
7	.07728	.05764	35.796	.01582	.07266	.06405	.08190	.05123
8	.08977	.06655	35.212	.01756	.08471	.07373	.09484	.05938
9	.10227	.07526	34.629	.01933	.09678	.08321	.10775	.06734
10	.11476	.08381	34.046	.02099	.10889	.09251	.12064	.07511
11	.12725	.09216	33.463	.02264	.12101	.10160	.13350	.08271
12	.13975	.10033	32.881	.02426	.13316	.11051	.14633	.09014
13	.15224	.10831	32.301	.02584	.14534	.11923	.15914	.09740

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16474	.11612	31.723	.02737	.15754	.12776	.17193	.10449
15	.17723	.12376	31.147	.02885	.16977	.13611	.18469	.11142
16	.18972	.13123	30.573	.03029	.18202	.14427	.19743	.11819
17	.20222	.13852	30.002	.03160	.19430	.15224	.21014	.12481
18	.21294	.14465	29.538	.03283	.20485	.15894	.22103	.13037
19	.22366	.15066	29.033	.03395	.21543	.16551	.23189	.13582
20	.23439	.15654	28.488	.03502	.22603	.17193	.24274	.14115
21	.24511	.16230	27.962	.03606	.23665	.17822	.25356	.14637
22	.25583	.16793	27.425	.03706	.24730	.18437	.26436	.15148
23	.26655	.17343	26.877	.03801	.25795	.19038	.27515	.15648
24	.27728	.17880	26.318	.03892	.26865	.19624	.28590	.16135
25	.28800	.18403	25.745	.03979	.27936	.20195	.29664	.16612
26	.29872	.18914	25.166	.04061	.29009	.20752	.30736	.17076
27	.30945	.19411	24.572	.04139	.30084	.21293	.31805	.17529
28	.32017	.19894	23.967	.04212	.31161	.21819	.32872	.17970
29	.33089	.20364	23.353	.04280	.32241	.22329	.33937	.18399
30	.34161	.20820	22.721	.04344	.33322	.22824	.35000	.18817
31	.35234	.21262	22.080	.04403	.34406	.23302	.36061	.19222
32	.36306	.21690	21.426	.04458	.35492	.23765	.37120	.19615
33	.37378	.22104	20.763	.04507	.36580	.24211	.38177	.19997
34	.38520	.22528	20.154	.04554	.37739	.24657	.39301	.20389
35	.39661	.22937	19.365	.04595	.38899	.25105	.40423	.20770
36	.40803	.23331	18.596	.04631	.40060	.25524	.41545	.21138
37	.41944	.23719	18.046	.04661	.41222	.25926	.42666	.21494
38	.43086	.24075	17.415	.04684	.42385	.26[illegible]3	.43787	.21840
39	.44227	.24426	16.807	.04702	.43547	.26[illegible]7	.44907	.22176
40	.45368	.24765	16.219	.04714	.44710	.27[illegible]3	.46027	.22501
41	.46513	.25091	15.654	.04720	.45873	.27358	.47147	.22818
42	.47651	.25405	15.110	.04719	.47036	.27663	.48266	.23126
43	.48793	.25707	14.590	.04713	.48199	.27958	.49386	.23427
44	.49934	.25999	14.093	.04700	.49362	.28270	.50506	.23720
45	.51076	.26281	13.623	.04682	.50524	.28556	.51627	.24005
46	.52217	.26552	13.171	.04658	.51686	.28820	.52748	.24285
47	.53359	.26815	12.747	.04623	.52848	.29072	.53869	.24558
48	.54500	.27069	12.347	.04594	.54009	.29313	.54991	.24825
49	.55641	.27315	11.972	.04554	.55169	.29542	.56114	.25088
50	.56967	.27591	11.547	.04531	.56516	.29796	.57417	.25386
51	.58292	.27856	11.112	.04442	.57864	.30036	.58720	.25677
52	.59619	.28111	10.667	.04376	.59213	.30262	.60023	.25961
53	.60943	.28356	10.212	.04305	.60562	.30474	.61325	.26237
54	.62269	.28589	9.747	.04220	.61911	.30672	.62627	.26506
55	.63594	.28811	9.273	.04145	.63260	.30856	.63928	.26766
56	.64920	.29022	8.789	.04056	.64610	.31026	.65230	.27017
57	.66245	.29221	8.293	.03953	.65959	.31181	.66531	.27260
58	.67571	.29408	7.789	.03865	.67309	.31322	.67833	.27493
59	.68596	.29583	7.274	.03762	.68658	.31449	.69134	.27710
60	.70222	.29746	6.749	.03654	.70007	.31561	.70436	.27932
61	.71547	.29897	6.215	.03542	.71355	.31658	.71739	.28136
62	.72873	.30035	5.670	.03426	.72703	.31740	.73042	.28330
63	.74198	.30160	5.116	.03306	.74051	.31807	.74345	.28513
64	.75523	.30272	4.552	.03183	.75397	.31858	.75650	.28686
65	.76849	.30371	3.978	.03055	.76743	.31895	.76955	.28847
66	.78294	.30463	3.390	.02913	.78209	.31918	.78379	.29009
67	.79739	.30540	2.686	.02767	.79674	.31922	.79804	.29158
68	.81184	.30599	2.117	.02618	.81138	.31907	.81230	.29291
69	.82623	.30641	1.332	.02465	.82603	.31873	.82657	.29409

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.84074	.31666	.633	.02309	.84061	.31820	.84086	.29511
71	.85519	.31673	-.182	.02151	.85520	.31748	.85517	.29598
72	.86963	.31662	-.811	.01990	.86978	.31656	.86949	.29667
73	.88408	.31632	-1.553	.01826	.88433	.31545	.88384	.29719
74	.89853	.31583	-2.311	.01661	.89887	.31413	.89820	.29753
75	.91298	.31515	-3.082	.01494	.91338	.31261	.91258	.29769
76	.92743	.31428	-3.866	.01325	.92788	.31088	.92699	.29767
77	.94188	.31320	-4.664	.01155	.94235	.30895	.94141	.29744
78	.95633	.31192	-5.474	.00983	.95680	.30681	.95586	.29702
79	.97078	.31043	-6.295	.00811	.97122	.30446	.97034	.29640
80	.98523	.30873	-7.131	.00637	.98562	.30189	.98483	.29557
81	.99968	.29681	-7.976	.00463	1.00000	.29911	.99936	.29452

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 8

BETA1	= 38.547	(BLADE INLET ANGLE.)
BETA2	= -8.155	(BLADE OUTLET ANGLE.)
YZERO	= .00224	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .04632	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00224	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5000	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.2730	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0433

STAGGER ANGLE = 16.945

CAMBER ANGLE = 46.632

SECTION AREA = .03403

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47740
YBAR = .22439

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00017
IY = .00182
IXY = .00051

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.928

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00032 (AT 15.928 WITH 'X' AXIS)
IPY = .00346 (AT 15.928 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00233	0.00200	38.547	.00467	.00088	.00183	.00379	-.00083
2	.01474	.00979	37.995	.00661	.01271	.01239	.01677	.00719
3	.02715	.01938	37.442	.00851	.02456	.02276	.02974	.01600
4	.03955	.02879	36.885	.01041	.03643	.03295	.04268	.02463
5	.05196	.03801	36.327	.01228	.04832	.04295	.05560	.03306
6	.06437	.04704	35.767	.01413	.06024	.05277	.06850	.04130
7	.07678	.05588	35.206	.01594	.07218	.06239	.08137	.04937
8	.08718	.06456	34.642	.01773	.08414	.07184	.09422	.05725
9	.10159	.07303	34.078	.01948	.09613	.08109	.10705	.06496
10	.11400	.08133	33.513	.02120	.10814	.09017	.11985	.07249
11	.12640	.08946	32.946	.02288	.12018	.09906	.13262	.07986
12	.13881	.09741	32.383	.02452	.13225	.10777	.14537	.08706
13	.15122	.10520	31.813	.02612	.14435	.11629	.15810	.09417

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16362	.11281	31.245	.02767	.15645	.12464	.17080	.10098
15	.17603	.12025	30.678	.02918	.16859	.13280	.18348	.10770
16	.18844	.12753	30.111	.03065	.18075	.14078	.19613	.11427
17	.20084	.13464	29.545	.03206	.19294	.14859	.20875	.12069
18	.21121	.14046	29.067	.03321	.20315	.15498	.21928	.12595
19	.22158	.14617	28.578	.03432	.21338	.16124	.22979	.13110
20	.23195	.15176	28.078	.03539	.22362	.16737	.24028	.13615
21	.24232	.15723	27.568	.03643	.23389	.17338	.25075	.14109
22	.25269	.16259	27.046	.03742	.24418	.17925	.26120	.14592
23	.26306	.16782	26.512	.03838	.25449	.18499	.27163	.15065
24	.27343	.17293	25.967	.03930	.26483	.19060	.28203	.15527
25	.28380	.17792	25.411	.04017	.27518	.19606	.29242	.15978
26	.29417	.18278	24.842	.04101	.28556	.20139	.30278	.16418
27	.30454	.18752	24.261	.04180	.29595	.20657	.31313	.16847
28	.31491	.19213	23.669	.04255	.30637	.21161	.32345	.17264
29	.32528	.19661	23.064	.04325	.31681	.21651	.33375	.17671
30	.33565	.20096	22.447	.04391	.32726	.22125	.34403	.18067
31	.34602	.20518	21.817	.04453	.33774	.22584	.35429	.18451
32	.35639	.20926	21.174	.04509	.34824	.23029	.36453	.18823
33	.36675	.21321	20.519	.04562	.35876	.23457	.37475	.19185
34	.37797	.21733	19.813	.04613	.37015	.23903	.38579	.19563
35	.38918	.22129	19.125	.04659	.38155	.24330	.39681	.19928
36	.40039	.22510	18.457	.04699	.39296	.24739	.40783	.20282
37	.41161	.22878	17.809	.04733	.40437	.25131	.41884	.20624
38	.42282	.23231	17.183	.04762	.41578	.25506	.42985	.20956
39	.43403	.23571	16.578	.04785	.42721	.25864	.44086	.21278
40	.44524	.23899	15.995	.04802	.43863	.26207	.45186	.21591
41	.45646	.24214	15.434	.04813	.45005	.26534	.46286	.21895
42	.46767	.24518	14.897	.04818	.46148	.26846	.47386	.22190
43	.47888	.24811	14.384	.04817	.47290	.27144	.48487	.22478
44	.49010	.25094	13.895	.04810	.48432	.27428	.49587	.22759
45	.50131	.25366	13.431	.04797	.49574	.27699	.50688	.23033
46	.51252	.25629	12.991	.04778	.50715	.27957	.51789	.23302
47	.52373	.25884	12.577	.04753	.51856	.28203	.52891	.23564
48	.53495	.26130	12.188	.04724	.52996	.28438	.53993	.23821
49	.54616	.26368	11.825	.04689	.54136	.28663	.55096	.24074
50	.55973	.26647	11.397	.04640	.55515	.28921	.56431	.24373
51	.57330	.26915	10.961	.04583	.56894	.29165	.57766	.24665
52	.58687	.27173	10.515	.04520	.58275	.29395	.59100	.24951
53	.60044	.27419	10.062	.04450	.59655	.29610	.60433	.25228
54	.61401	.27654	9.600	.04373	.61036	.29810	.61766	.25498
55	.62758	.27878	9.129	.04291	.62418	.29996	.63098	.25760
56	.64115	.28090	8.649	.04202	.63799	.30167	.64431	.26013
57	.65472	.28291	8.161	.04108	.65181	.30324	.65764	.26258
58	.66829	.28479	7.665	.04008	.66562	.30465	.67096	.26493
59	.68186	.28656	7.159	.03903	.67943	.30592	.68429	.26720
60	.69543	.28820	6.645	.03793	.69324	.30704	.69763	.26936
61	.70900	.28972	6.123	.03678	.70704	.30800	.71096	.27143
62	.72257	.29111	5.592	.03559	.72084	.30882	.72431	.27340
63	.73614	.29238	5.053	.03435	.73463	.30948	.73765	.27527
64	.74971	.29351	4.505	.03307	.74841	.31000	.75101	.27703
65	.76328	.29451	3.949	.03175	.76219	.31035	.76437	.27868
66	.77806	.29545	3.330	.03028	.77718	.31057	.77894	.28034
67	.79283	.29623	2.692	.02876	.79215	.31060	.79351	.28187
68	.80760	.29684	2.037	.02721	.80712	.31044	.80809	.28325
69	.82238	.29728	1.363	.02561	.82207	.31009	.82268	.28448

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83715	.29754	.671	.02399	.83701	.30954	.83729	.28555
71	.85193	.29763	-.039	.02234	.85194	.30879	.85192	.28646
72	.86670	.29752	-.767	.02066	.86684	.30785	.86656	.28720
73	.88146	.29723	-1.512	.01895	.88173	.30670	.88123	.28776
74	.89625	.29674	-2.274	.01722	.89659	.30534	.89591	.28814
75	.91113	.29605	-3.052	.01547	.91144	.30378	.91061	.28833
76	.92583	.29516	-3.847	.01370	.92626	.30200	.92534	.28833
77	.94058	.29407	-4.659	.01191	.94106	.30000	.94009	.28813
78	.95535	.29275	-5.486	.01012	.95583	.29779	.95487	.28772
79	.97012	.29123	-6.328	.00831	.97058	.29536	.96967	.28710
80	.98490	.28948	-7.184	.00649	.98530	.29270	.98449	.28626
81	.99967	.28750	-8.055	.00467	1.00000	.28981	.99935	.28519

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 9

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BETA1          = 37.918     (BLADE INLET ANGLE.)
BETA2          = -8.143     (BLADE OUTLET ANGLE.)
YZERO          =  .01226    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T              =  .04749    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE           =  .01226    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z              =  .5000     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD           = 2.2547     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.0381

STAGGER ANGLE  = 15.617

CAMBER ANGLE   = 46.057

SECTION AREA   = .03459

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

     XBAR =  .47823
     YBAR =  .21930

SECOND MOMENTS OF AREA ABOUT CENTROID

     IX   =  .00116
     IY   =  .00185
     IXY  =  .00052

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.434

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

     IPX  = .00032     (AT 15.434 WITH 'X' AXIS)
     IPY  = .00199     (AT 15.434 WITH 'Y' AXIS)
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POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00235	0.00183	37.916	.00469	.00091	.00185	.00379	-.00185
2	.01469	.00952	37.388	.00665	.01267	.01216	.01671	.00688
3	.02703	.01887	36.855	.00859	.02446	.02230	.02961	.01543
4	.03938	.02803	36.319	.01051	.03626	.03226	.04249	.02380
5	.05172	.03701	35.779	.01241	.04809	.04234	.05534	.03198
6	.06406	.04582	35.236	.01427	.05994	.05165	.06818	.03999
7	.07640	.05445	34.691	.01612	.07182	.06138	.08099	.04783
8	.08875	.06291	34.142	.01793	.08372	.07 33	.09378	.05549
9	.10119	.07119	33.590	.01971	.09564	.07940	.10654	.06298
10	.11343	.07930	33.036	.02145	.10759	.08830	.11928	.07031
11	.12578	.08725	32.480	.02316	.11956	.09702	.13200	.07746
12	.13812	.09502	31.921	.02483	.13156	.10556	.14468	.08448
13	.15046	.10263	31.360	.02646	.14358	.11392	.15735	.09133

POINT	M E A N L I N E D A T A				SUR ACE COOR[illegible]ATE DATA			
NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
14	.16281	.11066	30.797	.02804	.15563	.12211	.15999	.09802
15	.17515	.11734	30.232	.02958	.16770	.13012	.18260	.10456
16	.18749	.12445	29.665	.03107	.17980	.13795	.19518	.11[illegible]95
17	.19984	.1[illegible]140	29.097	.03252	.19193	.14561	.20774	.11719
18	.20991	.13695	28.627	.03366	.20184	.15172	.21797	.12218
19	.21998	.1[illegible]40	28.148	.03477	.21178	.15772	.22818	.12707
20	.23015	.14773	27.658	.03584	.22173	.16350	.23837	.13186
21	.24312	.15295	27.157	.03688	.23171	.16936	.24854	.13655
22	.25[illegible]20	.158[illegible]6	26.646	.03780	[illegible]	.17499	.25869	.14114
23	.26027	.[illegible]6306	26.125	.03884	.25172	.1[illegible]49	.26882	.14562
24	.27034	.16794	25.592	.03976	.26[illegible]75	.18587	.27893	.15001
25	.28041	.17271	25.045	.04065	.27181	.19112	.28902	.15429
26	.290[illegible]8	.17735	24.493	.04149	.28188	.19623	.29908	.15848
27	.30055	.18188	23.926	.04[illegible]3[illegible]	.29198	.20121	.30913	.16255
28	.31061	.18629	23.349	.04306	.30209	.20606	.31916	.16653
29	.3[illegible]	.19058	22.7[illegible]9	.04378	.31223	.21076	.32917	.17039
30	.3[illegible]077	.19474	22.158	.04446	.[illegible]2239	.21533	.33915	.17415
31	.34084	.19878	21.[illegible]45	.04505	.33256	.21975	.34912	.17781
32	.35091	.20269	20.[illegible]20	.04569	.34276	.22403	.35907	.18136
33	.36099	.20648	20.283	.04623	.35297	.22816	.36900	.18480
34	.37[illegible]32	.21048	19.5[illegible]7	.04678	.36417	.23252	.37986	.18844
35	.38305	.21433	18.910	.04728	.37538	.23670	.39071	.19197
36	.394[illegible]5	.21804	18.252	.04772	.38660	.24070	.40155	.19538
37	.40511	.22161	17.614	.04810	.39783	.24453	.41238	.19868
38	.41613	.22504	16.996	.04843	.40906	.24820	.42321	.20189
39	.42716	.22835	16.399	.04870	.42029	.25171	.43404	.20499
40	.43813	.23154	15.823	.04892	.43153	.25507	.44486	.20801
41	.44922	.23461	15.270	.04907	.44276	.25828	.45569	.21094
42	.46025	.23756	14.738	.04917	.45400	.26134	.46651	.21379
43	.47128	.[illegible]4041	14.230	.04920	.46524	.26426	.47733	.21656
44	.48231	.24316	13.746	.04918	.47647	.26704	.48816	.21927
45	.493[illegible]4	.24581	13.284	.04910	.48770	.26970	.49898	.22192
46	.5043[illegible]	.24037	12.847	.04895	.49893	.27223	.50982	.22450
47	.5154[illegible]	.25084	12.435	.04875	.51015	.27465	.52065	.22704
48	.52643	.25323	12.047	.04850	.52137	.27695	.53149	.22952
49	.53746	.25555	11.684	.04819	.53258	.27915	.54234	.23195
50	.55130	.25836	11.242	.04774	.54665	.28177	.55595	.23495
51	.56514	.2613[illegible]	10.793	.04720	.56072	.28423	.56956	.23787
52	.57898	.26[illegible]63	10.339	.04659	.57480	.28655	.58316	.24[illegible]72
53	.59252	.26610	9.879	.04590	.58888	.28871	.59676	.24349
54	.60666	.26845	9.413	.04514	.60297	.29[illegible]72	.61035	.24619
55	.62050	.27069	8.942	.04432	.61706	.29256	.62395	.24880
56	.63434	.27281	8.46[illegible]	.04343	.63114	.29429	.63754	.25133
57	.64818	.27481	7.981	.04247	.64523	.29584	.65113	.25378
58	.66212	.27[illegible]9	[illegible].493	.04146	.65932	.29724	.66472	.25614
59	.67586	.278[illegible]	6.99[illegible]	.04039	.67340	.29849	.67832	.25840
60	.68970	.28009	6.498	.03927	.68748	.29959	.69192	.26058
61	.70354	.28160	5.993	.03809	.70155	.30054	.70553	.26266
62	.71738	.28299	5.482	.03686	.71562	.30134	.71914	.26465
63	.73122	.28426	4.965	.03559	.72968	.30198	.73276	.26653
64	.74506	.28540	4.443	.03427	.74373	.30248	.74639	.26831
65	.75890	.28641	3.916	.03291	.75778	.30282	.76002	.26999
66	.77395	.28736	3.329	.03138	.77304	.30302	.77486	.27170
67	.78900	.28816	2.718	.02981	.78829	.30304	.78970	.27327
68	.80434	.28879	2.084	.02819	.80353	.30288	.80456	.27470
69	.81939	.28925	1.428	.02654	.81876	.30252	.81942	.27598

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83414	.28954	.749	.02485	.83398	.30136	.83430	.27711
71	.84919	.28964	.048	.02313	.84918	.30121	.84920	.27808
72	.86424	.28956	-.676	.02138	.86436	.30125	.86411	.27887
73	.87928	.28928	-1.422	.01960	.87953	.29908	.87904	.27949
74	.89433	.28881	-2.190	.01780	.89467	.29770	.89399	.27992
75	.90938	.28813	-2.979	.01597	.90979	.29611	.90896	.28016
76	.92443	.28724	-3.789	.01413	.92489	.29429	.92396	.28020
77	.93948	.28614	-4.620	.01226	.93997	.29225	.93898	.28003
78	.95452	.28481	-5.471	.01039	.95502	.28998	.95403	.27964
79	.96957	.28325	-6.342	.00850	.97004	.28747	.96910	.27903
80	.98462	.28146	-7.232	.00660	.98504	.28473	.98420	.27819
81	.99967	.27943	-8.140	.00469	1.00000	.28175	.99934	.27711

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                    STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 10
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BETA1        = 37.412       (BLADE INLET ANGLE.)
BETA2        = -8.231       (BLADE OUTLET ANGLE.)
YZERO        =  .01227      (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T            =  .04851      (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE         =  .01227      (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z            =  .5000       (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD         = 2.2479       (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD    = 1.0363

STAGGER ANGLE  = 15.255

CAMBER ANGLE   = 45.643

SECTION AREA   = .03522

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

          XBAR =  .47897
          YBAR =  .21531

SECOND MOMENTS OF AREA ABOUT CENTROID

          IX   =  .00116
          IY   =  .00188
          IXY  =  .0035C

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.041

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

          IPX  = .00102      (AT 15.041 WITH 'X' AXIS)
          IPY  = .00201      (AT 15.041 WITH 'Y' AXIS)

   POINT        M E A N L I N E   D A T A              SURFACE COORDINATE DATA
   NUMBER      X        Y     ANGLE THICKNESS        XS      YS      XP      YP

     1      .00235 0.00000 37.412  .00471         .00092  .00187  .00379 -.00187
     2      .01464  .00930 36.883  .00669         .01263  .01198  .01664  .00663
     3      .02692  .01843 36.352  .00866         .02435  .02192  .02948  .01495
     4      .03923  .02738 35.818  .01060         .03610  .03168  .04239  .02308
     5      .05148  .03616 35.281  .01253         .04786  .04127  .05510  .03105
     6      .06376  .04476 34.742  .01443         .05965  .05069  .06788  .03884
     7      .07605  .05320 34.201  .01630         .07147  .05994  .08063  .04646
     8      .08833  .06146 33.658  .01814         .08330  .06901  .09335  .05391
     9      .10061  .06955 33.113  .01995         .09516  .07791  .10606  .06120
    10      .11289  .07748 32.566  .02172         .10705  .08653  .11874  .06833
    11      .12517  .08524 32.018  .02346         .11896  .09519  .13139  .07530
    12      .13746  .09284 31.468  .02515         .13089  .10357  .14402  .08211
    13      .14974  .10028 30.917  .02681         .14285  .11178  .15662  .08878
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16212	.10755	30.365	.02842	.15483	.11981	.16920	.09529
15	.17439	.11467	29.812	.02999	.16685	.12768	.18176	.10166
16	.18658	.12163	29.258	.03151	.17888	.13537	.19428	.10788
17	.19886	.12843	28.704	.03299	.19094	.14290	.20679	.11396
18	.20871	.13377	28.254	.03414	.20063	.14880	.21679	.11874
19	.21856	.13921	27.793	.03525	.21034	.15460	.22677	.12342
20	.22840	.14415	27.321	.03633	.22007	.16029	.23674	.12801
21	.23825	.14918	26.837	.03737	.22981	.16586	.24669	.13251
22	.24810	.15411	26.342	.03836	.23958	.17131	.25661	.13692
23	.25794	.15893	25.835	.03935	.24937	.17664	.26652	.14122
24	.26779	.16365	25.317	.04029	.25917	.18186	.27640	.14544
25	.27763	.16825	24.786	.04119	.26900	.18695	.28627	.14955
26	.28748	.17274	24.243	.04204	.27885	.19191	.29611	.15357
27	.29733	.17712	23.687	.04286	.28872	.19674	.30594	.15749
28	.30717	.18138	23.119	.04364	.29861	.20145	.31574	.16131
29	.31702	.18552	22.538	.04438	.30851	.20602	.32553	.16503
30	.32687	.18955	21.944	.04508	.31844	.21046	.33529	.16864
31	.33671	.19346	21.338	.04574	.32839	.21476	.34503	.17216
32	.34656	.19724	20.718	.04635	.33836	.21892	.35476	.17557
33	.35641	.20090	20.085	.04692	.34835	.22294	.36446	.17887
34	.36728	.20481	19.387	.04750	.35940	.22721	.37517	.18240
35	.37816	.20856	18.709	.04803	.37046	.23131	.38587	.18582
36	.38904	.21218	18.051	.04851	.38153	.23524	.39656	.18912
37	.39992	.21566	17.414	.04892	.39260	.23900	.40724	.19232
38	.41080	.21900	16.798	.04929	.40368	.24260	.41792	.19541
39	.42168	.22223	16.204	.04960	.41476	.24604	.42860	.19841
40	.43256	.22533	15.633	.04985	.42584	.24933	.43928	.20133
41	.44344	.22832	15.085	.05004	.43693	.25247	.44995	.20416
42	.45432	.23120	14.561	.05017	.44801	.25548	.46063	.20692
43	.46520	.23397	14.061	.05025	.45910	.25834	.47130	.20960
44	.47608	.23665	13.585	.05026	.47018	.26108	.48198	.21222
45	.48696	.23923	13.135	.05022	.48125	.26368	.49266	.21478
46	.49784	.24173	12.709	.05011	.49232	.26617	.50335	.21728
47	.50872	.24416	12.309	.04995	.50339	.26854	.51404	.21974
48	.51960	.24648	11.936	.04973	.51445	.27081	.52474	.22215
49	.53048	.24874	11.588	.04946	.52551	.27297	.53544	.22451
50	.54453	.25157	11.152	.04903	.53979	.27562	.54928	.22751
51	.55859	.25428	10.713	.04852	.55405	.27812	.56310	.23045
52	.57265	.25689	10.263	.04792	.56836	.28046	.57692	.23331
53	.58671	.25937	9.809	.04725	.58269	.28265	.59073	.23610
54	.60077	.26175	9.349	.04649	.59699	.28469	.60454	.23881
55	.61483	.26400	8.883	.04567	.61130	.28656	.61835	.24144
56	.62889	.26614	8.413	.04477	.62561	.28829	.63216	.24399
57	.64294	.26816	7.932	.04381	.63992	.28985	.64597	.24646
58	.65700	.27006	7.448	.04278	.65423	.29127	.65977	.24685
59	.67106	.27183	6.958	.04169	.66854	.29253	.67359	.25114
60	.68512	.27349	6.462	.04054	.68284	.29363	.68740	.25335
61	.69918	.27502	5.960	.03934	.69714	.29458	.70122	.25546
62	.71324	.27642	5.452	.03808	.71143	.29538	.71504	.25747
63	.72729	.27770	4.938	.03676	.72571	.29602	.72888	.25939
64	.74135	.27885	4.418	.03540	.73999	.29650	.74272	.26120
65	.75541	.27987	3.893	.03403	.75426	.29683	.75657	.26291
66	.77368	.28084	3.308	.03242	.76974	.29702	.77161	.26465
67	.78594	.28164	2.699	.03080	.78522	.29702	.78667	.26625
68	.80121	.28227	2.066	.02913	.80068	.29683	.80173	.26772
69	.81647	.28274	1.409	.02742	.81614	.29644	.81681	.26903

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83174	.28302	.729	.02567	.83158	.29585	.83190	.27019
71	.84701	.28312	.025	.02388	.84700	.29506	.84701	.27118
72	.86227	.28303	-.732	.02207	.86241	.29406	.86214	.27200
73	.87754	.28275	-1.451	.02022	.87779	.29285	.87728	.27264
74	.89280	.28226	-2.224	.01834	.89316	.29142	.89245	.27309
75	.90807	.28156	-3.019	.01645	.90853	.28977	.90764	.27335
76	.92333	.28064	-3.836	.01453	.92382	.28789	.92285	.27340
77	.93860	.27951	-4.674	.01259	.93911	.28578	.93809	.27324
78	.95387	.27815	-5.533	.01063	.95438	.28344	.95335	.27285
79	.96913	.27655	-6.413	.00867	.96962	.28086	.96865	.27224
80	.98440	.27471	-7.312	.00669	.98482	.27813	.98397	.27139
81	.99965	.27263	-8.231	.00471	1.00000	.27496	.99933	.27030

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 11
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BETA1     = 37.346     (BLADE INLET ANGLE.)
BETA2     = -8.330     (BLADE OUTLET ANGLE.)
YZERO     =  .00228    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T         =  .04965    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE      =  .00228    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z         =  .5000     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD      = 2.2527     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD = 1.0350

STAGGER ANGLE = 14.989

CAMBER ANGLE = 45.376

SECTION AREA = .03593

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47954
YBAR = .21177

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00116
IY = .00191
IXY = .00050

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.753

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00092 (AT 14.753 WITH 'X' AXIS)
IPY = .00254 (AT 14.753 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00236	0.00000	37.346	.00472	.00094	.00188	.00378	-.00188
2	.01457	.00913	36.517	.00674	.01257	.01184	.01658	.00642
3	.02679	.01809	35.987	.00873	.02422	.02162	.02935	.01455
4	.03900	.02687	35.453	.01071	.03590	.03123	.04211	.02251
5	.05122	.03548	34.918	.01266	.04759	.04067	.05484	.03029
6	.06343	.04392	34.381	.01459	.05931	.04994	.06755	.03790
7	.07564	.05219	33.841	.01649	.07105	.05905	.08024	.04534
8	.08786	.06030	33.300	.01837	.08281	.06738	.09290	.05263
9	.10007	.06824	32.756	.02020	.09460	.07674	.10554	.05975
10	.11228	.07602	32.214	.02201	.10642	.08533	.11815	.06671
11	.12450	.08363	31.669	.02378	.11825	.09375	.13074	.07351
12	.13671	.09109	31.123	.02550	.13012	.10200	.14330	.08017
13	.14892	.09838	30.577	.02719	.14201	.11009	.15584	.08668

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.16114	.10552	30.129	.02884	.15392	.11810	.16835	.09304
15	.17335	.11250	29.481	.03044	.16586	.12575	.18084	.09925
16	.18556	.11933	28.933	.03199	.17783	.13333	.19330	.10533
17	.19778	.12601	28.385	.03349	.18982	.14074	.20574	.11127
18	.20745	.13120	27.944	.03465	.19936	.14651	.21560	.11589
19	.21715	.13630	27.493	.03578	.20892	.15217	.22544	.12043
20	.22688	.14130	27.030	.03687	.21850	.15772	.23526	.12487
21	.23658	.14619	26.556	.03793	.22810	.16316	.24506	.12923
22	.24628	.15099	26.071	.03896	.23772	.16849	.25484	.13349
23	.25598	.15569	25.574	.03995	.24736	.17370	.26460	.13767
24	.26568	.16028	25.065	.04091	.25702	.17880	.27434	.14175
25	.27538	.16476	24.545	.04182	.26670	.18378	.28407	.14574
26	.28508	.16913	24.012	.04269	.27639	.18863	.29377	.14964
27	.29478	.17340	23.467	.04353	.28611	.19337	.30345	.15344
28	.30449	.17756	22.911	.04433	.29585	.19797	.31311	.15714
29	.31419	.18160	22.341	.04509	.30561	.20245	.32275	.16075
30	.32388	.18553	21.759	.04581	.31539	.20680	.33237	.16426
31	.33358	.18934	21.164	.04649	.32519	.21102	.34198	.16767
32	.34328	.19304	20.555	.04712	.33501	.21510	.35156	.17098
33	.35298	.19662	19.935	.04772	.34485	.21905	.36112	.17419
34	.36376	.20045	19.247	.04833	.35579	.22326	.37172	.17764
35	.37453	.20414	18.579	.04888	.36674	.22731	.38232	.18097
36	.38530	.20769	17.930	.04939	.37770	.23119	.39290	.18420
37	.39617	.21111	17.302	.04983	.38866	.23490	.40348	.18733
38	.40694	.21441	16.695	.05023	.39963	.23846	.41406	.19035
39	.41762	.21758	16.109	.05056	.41060	.24187	.42463	.19329
40	.42839	.22063	15.546	.05084	.42157	.24512	.43520	.19614
41	.43916	.22357	15.005	.05107	.43255	.24823	.44577	.19891
42	.44993	.22641	14.487	.05123	.44352	.25121	.45634	.20161
43	.46070	.22914	13.993	.05133	.45450	.25405	.46691	.20423
44	.47147	.23178	13.523	.05138	.46547	.25676	.47748	.20680
45	.48225	.23432	13.077	.05136	.47644	.25934	.48806	.20931
46	.49302	.23678	12.656	.05129	.48740	.26180	.49864	.21176
47	.50379	.23916	12.260	.05115	.49836	.26416	.50922	.21417
48	.51456	.24147	11.889	.05096	.50931	.26640	.51981	.21653
49	.52533	.24370	11.544	.05072	.52026	.26855	.53041	.21885
50	.53956	.24655	11.102	.05031	.53471	.27123	.54440	.22186
51	.55378	.24928	10.656	.04981	.54917	.27376	.55838	.22481
52	.56800	.25190	10.204	.04922	.56364	.27612	.57236	.22768
53	.58223	.25440	9.747	.04855	.57812	.27833	.58634	.23048
54	.59645	.25679	9.286	.04780	.59259	.28037	.60031	.23320
55	.61067	.25905	8.819	.04697	.60707	.28226	.61427	.23585
56	.62490	.26120	8.347	.04607	.62155	.28399	.62824	.23841
57	.63912	.26323	7.870	.04509	.63603	.28556	.64221	.24089
58	.65334	.26513	7.389	.04404	.65051	.28697	.65617	.24329
59	.66756	.26691	6.902	.04293	.66499	.28822	.67014	.24561
60	.68179	.26857	6.411	.04175	.67946	.28932	.68412	.24783
61	.69601	.27011	5.915	.04052	.69392	.29026	.69810	.24996
62	.71023	.27152	5.414	.03922	.70838	.29105	.71209	.25200
63	.72445	.27281	4.909	.03788	.72284	.29168	.72608	.25394
64	.73868	.27396	4.399	.03648	.73728	.29215	.74008	.25578
65	.75290	.27499	3.884	.03503	.75172	.29247	.75409	.25752
66	.76833	.27596	3.311	.03343	.76736	.29264	.76929	.25929
67	.78375	.27678	2.711	.03173	.78300	.29262	.78450	.26093
68	.79917	.27742	2.085	.03000	.79862	.29242	.79972	.26243
69	.81459	.27790	1.433	.02824	.81424	.29231	.81495	.26378

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83011	.27819	.756	.02643	.82984	.29141	.83019	.26498
71	.84544	.27830	.952	.02458	.84543	.29059	.84545	.26601
72	.86086	.27822	-.677	.02272	.86099	.28957	.86072	.26687
73	.87628	.27794	-1.431	.02079	.87654	.28833	.87602	.26754
74	.89170	.27745	-2.211	.01885	.89207	.28686	.89134	.26803
75	.90713	.27674	-3.015	.01688	.90757	.28517	.90668	.26831
76	.92255	.27582	-3.843	.01490	.92305	.28325	.92205	.26839
77	.93797	.27467	-4.695	.01289	.93850	.28109	.93744	.26824
78	.95339	.27328	-5.571	.01086	.95392	.27869	.95286	.26788
79	.96881	.27166	-6.469	.00883	.96931	.27604	.96832	.26727
80	.98424	.26978	-7.388	.00678	.98467	.27314	.98380	.26642
81	.99966	.26766	-8.33[illegible]	.00472	1.00000	.26999	.99932	.26532

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 12

BETA1	= 36.832	(BLADE INLET ANGLE.)
BETA2	= -6.439	(BLADE OUTLET ANGLE.)
YZERO	= .00229	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .05384	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00229	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5307	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.2593	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0340

STAGGER ANGLE = 14.795

CAMBER ANGLE = 45.271

SECTION AREA = .03665

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47999
YBAR = .23943

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00015
IY = .00194
IXY = .00050

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.570

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00002 (AT 14.570 WITH 'X' AXIS)
IPY = .00207 (AT 14.570 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00237	0.00000	36.832	.00475	.00095	.00189	.00378	-.00189
2	.01453	.00900	36.284	.00678	.01249	.01173	.01650	.00626
3	.02663	.01761	35.734	.00881	.02406	.02139	.02920	.01424
4	.03876	.02645	35.185	.01082	.03564	.03087	.04188	.02203
5	.05089	.03492	34.636	.01281	.04725	.04019	.05453	.02965
6	.06302	.04322	34.087	.01477	.05889	.04933	.06716	.03710
7	.07516	.05134	33.539	.01670	.07054	.05830	.07977	.04438
8	.08729	.05930	32.991	.01863	.08222	.06710	.09235	.05150
9	.09942	.06709	32.445	.02047	.09393	.07573	.10491	.05846
10	.11155	.07473	31.900	.02231	.10566	.08419	.11744	.06526
11	.12368	.08220	31.357	.02410	.11741	.09249	.12995	.07191
12	.13581	.08951	30.816	.02586	.12919	.10062	.14244	.07841
13	.14795	.09667	30.276	.02758	.14099	.10858	.15491	.08476

POINT	MEANLINE DATA				SURFACE COORDINATE DATA			
NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
14	.16258	.10368	29.740	.02926	.15282	.11638	.16733	.09098
15	.17221	.11053	29.206	.03089	.16467	.12421	.17975	.09705
16	.18434	.11724	28.675	.03247	.17655	.13149	.19213	.10300
17	.19647	.12381	28.148	.03401	.18845	.13880	.20451	.10881
18	.20611	.12891	27.724	.03519	.19792	.14449	.21430	.11334
19	.21574	.13393	27.289	.03635	.20741	.15008	.22408	.11778
20	.22538	.13886	26.841	.03747	.21692	.15557	.23384	.12214
21	.23502	.14368	26.381	.03855	.22645	.16095	.24358	.12641
22	.24465	.14841	25.909	.03967	.23600	.16622	.25330	.13060
23	.25429	.15304	25.424	.04062	.24557	.17139	.26300	.13470
24	.26392	.15757	24.926	.04159	.25516	.17643	.27269	.13871
25	.27356	.16208	24.415	.04254	.26477	.18136	.28235	.14263
26	.28319	.16632	23.891	.04344	.27440	.18618	.29199	.14646
27	.29283	.17053	23.353	.04430	.28405	.19087	.30161	.15020
28	.30246	.17464	22.802	.04512	.29372	.19544	.31121	.15384
29	.31210	.17864	22.236	.04591	.30341	.19988	.32078	.15739
30	.32173	.18252	21.657	.04665	.31313	.20420	.33034	.16084
31	.33137	.18629	21.064	.04735	.32286	.20838	.33988	.16419
32	.34100	.18994	20.456	.04801	.33261	.21243	.34939	.16745
33	.35064	.19347	19.834	.04863	.34239	.21635	.35889	.17060
34	.36135	.19727	19.144	.04927	.35328	.22054	.36943	.17399
35	.37207	.20091	18.474	.04985	.36417	.22456	.37997	.17727
36	.38278	.20443	17.624	.05038	.37507	.22841	.39049	.18045
37	.39350	.20781	17.197	.05085	.38598	.23210	.40102	.18352
38	.40421	.21106	16.591	.05127	.39689	.23563	.41153	.18649
39	.41493	.21419	16.079	.05163	.40781	.23901	.42205	.18938
40	.42564	.21721	15.449	.05193	.41873	.24224	.43256	.19218
41	.43636	.22012	14.914	.05218	.42964	.24533	.44307	.19491
42	.44707	.22292	14.403	.05236	.44056	.24828	.45359	.19756
43	.45779	.22562	13.917	.05249	.45148	.25110	.46410	.20015
44	.46850	.22823	13.456	.05256	.46239	.25379	.47462	.20268
45	.47922	.23075	13.021	.05256	.47330	.25636	.48514	.20515
46	.48993	.23319	12.612	.05251	.48420	.25881	.49567	.20757
47	.50165	.23555	12.229	.05239	.49510	.26115	.50620	.20995
48	.51136	.23784	11.872	.05221	.50599	.26338	.51673	.21229
49	.52209	.24006	11.542	.05195	.51688	.26552	.52728	.21459
50	.53641	.24293	11.116	.05159	.53144	.26824	.54138	.21762
51	.55074	.24569	10.682	.05109	.54601	.27079	.55548	.22058
52	.56517	.24833	10.242	.05051	.56059	.27319	.56956	.22348
53	.57941	.25087	9.734	.04984	.57517	.27542	.58365	.22631
54	.59374	.25328	9.341	.04908	.58976	.27750	.59772	.22907
55	.60807	.25558	8.878	.04824	.60435	.27941	.61179	.23175
56	.62240	.25776	8.410	.04732	.61894	.28116	.62586	.23435
57	.63674	.25982	7.934	.04632	.63354	.28276	.63993	.23688
58	.65137	.26175	7.452	.04525	.64813	.28419	.65400	.23932
59	.66540	.26357	6.963	.04411	.66273	.28546	.66807	.24167
60	.67373	.26525	6.467	.04291	.67732	.28657	.68215	.24394
61	.69436	.26681	5.964	.04164	.69190	.28752	.69623	.24611
62	.70843	.26825	5.455	.04031	.70648	.28831	.71031	.24818
63	.72273	.26955	4.938	.03893	.72105	.28894	.72440	.25016
64	.73706	.27072	4.415	.03749	.73562	.28941	.73850	.25204
65	.75139	.27176	3.886	.03599	.75017	.28972	.75261	.25381
66	.76691	.27274	3.296	.03432	.76592	.28987	.76790	.25561
67	.78243	.27355	2.682	.03260	.78166	.28983	.78319	.25727
68	.79734	.27419	2.342	.03082	.79739	.28959	.79849	.25879
69	.81346	.27465	1.378	.02903	.81311	.28915	.81381	.26016

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.82897	.27493	.689	.02714	.82881	.28850	.82914	.26136
71	.84449	.27502	-.025	.02524	.84450	.28764	.84448	.26241
72	.86001	.27492	-.763	.02330	.86016	.28657	.85985	.26327
73	.87552	.27461	-1.525	.02132	.87581	.28527	.87524	.26395
74	.89104	.27409	-2.313	.01932	.89143	.28374	.89065	.26444
75	.90656	.27336	-3.119	.01729	.90703	.28199	.90608	.26472
76	.92207	.27240	-3.952	.01524	.92260	.28000	.92155	.26480
77	.93759	.27121	-4.806	.01317	.93814	.27777	.93704	.26465
78	.95310	.26979	-5.683	.01108	.95365	.27530	.95256	.26427
79	.96862	.26812	-6.581	.00897	.96913	.27257	.96811	.26366
80	.98414	.26620	-7.500	.00685	.98458	.26960	.98369	.26281
81	.99965	.26403	-8.439	.00473	1.00000	.26637	.99931	.26169

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 13

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BETA1      = 36.785      (BLADE INLET ANGLE.)
BETA2      = -8.562      (BLADE OUTLET ANGLE.)
YZERO      =  .00229     (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD..
T          =  .05210     (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .00229     (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .5000      (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.2974      (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.0335

STAGGER ANGLE  = 14.690

CAMBER ANGLE   = 45.348

SECTION AREA   = .03747

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

          XBAR =  .48325
          YBAR =  .20810

SECOND MOMENTS OF AREA ABOUT CENTROID

          IX   =  .00016
          IY   =  .03198
          IXY  =  .00351

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.472

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

          IPX  = .00013       (AT 14.472 WITH 'X' AXIS)
          IPY  = .00211       (AT 14.472 WITH 'Y' AXIS)
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POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.03237	0.00000	36.785	.00473	.00095	.00190	.00378	-.00190
2	.01443	.00890	36.216	.00682	.01239	.01165	.01641	.00615
3	.02643	.01762	35.647	.00888	.02384	.02123	.02902	.01402
4	.03847	.02616	35.080	.01093	.03532	.03064	.04161	.02169
5	.05053	.03453	34.515	.01295	.04683	.03986	.05417	.02919
6	.06253	.04271	33.951	.01495	.05836	.04891	.06671	.03651
7	.07456	.05073	33.390	.01692	.06991	.05779	.07922	.04367
8	.08[illegible]63	.05858	32.832	.01885	.08149	.06650	.09171	.05066
9	.09863	.06626	32.277	.0[illegible]075	.09309	.07503	.10417	.05749
10	.11066	.07378	31.726	.02262	.10471	.08340	.11661	.06416
11	.12273	.08114	31.178	.02446	.11637	.09160	.12903	.07068
12	.13473	.08834	30.634	.02625	.12804	.09963	.14142	.07705
13	.14676	.09539	30.095	.02800	.13974	.10750	.153[illegible]	.08328

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.15879	.11229	29.561	.02971	.15147	.11521	.16612	.08937
15	.17083	.11904	29.033	.03137	.16321	.12276	.17844	.09533
16	.18286	.11565	28.509	.03299	.17439	.13014	.19073	.10116
17	.19489	.12212	27.992	.03456	.18678	.13737	.20300	.10686
18	.20454	.12720	27.574	.03578	.19626	.14306	.21282	.11134
19	.21419	.13219	27.144	.03697	.20576	.14864	.22262	.11574
20	.22384	.13709	26.701	.03813	.21527	.15412	.23241	.12006
21	.23349	.14190	26.247	.03925	.22481	.15950	.24217	.12430
22	.24314	.14661	25.781	.04033	.23437	.16477	.25191	.12845
23	.25279	.15122	25.302	.04138	.24394	.16992	.26163	.13251
24	.26243	.15573	24.810	.04239	.25354	.17497	.27133	.13649
25	.27208	.16014	24.305	.04337	.26316	.17990	.28101	.14038
26	.28173	.16444	23.787	.04430	.27280	.18471	.29067	.14418
27	.29138	.16864	23.256	.04520	.28246	.18941	.30030	.14788
28	.30103	.17274	22.711	.04605	.29214	.19398	.30992	.15150
29	.31068	.17672	22.153	.04686	.30184	.19842	.31951	.15502
30	.32033	.18059	21.581	.04763	.31157	.20274	.32909	.15845
31	.32998	.18435	20.994	.04836	.32131	.20693	.33864	.16178
32	.33963	.18800	20.394	.04905	.33108	.21099	.34817	.16501
33	.34927	.19153	19.780	.04969	.34087	.21491	.35768	.16815
34	.35959	.19531	19.099	.05035	.35175	.21910	.36823	.17152
35	.37073	.19895	18.437	.05096	.36264	.22312	.37876	.17477
36	.38141	.20245	17.797	.05151	.37354	.22698	.38929	.17793
37	.39213	.20583	17.177	.05201	.38445	.23067	.39981	.18098
38	.40284	.20908	16.579	.05244	.39536	.23421	.41032	.18394
39	.41355	.21221	16.002	.05282	.40627	.23760	.42083	.18682
40	.42427	.21522	15.449	.05315	.41719	.24084	.43134	.18961
41	.43498	.21813	14.919	.05341	.42810	.24393	.44185	.19233
42	.44569	.22093	14.413	.05361	.43902	.24689	.45236	.19497
43	.45643	.22364	13.931	.05375	.44993	.24972	.46287	.19755
44	.46712	.22625	13.473	.05383	.46085	.25242	.47339	.20008
45	.47783	.22877	13.041	.05384	.47176	.25500	.48390	.20255
46	.48854	.23121	12.633	.05380	.48266	.25746	.49443	.20497
47	.49926	.23358	12.251	.05369	.49356	.25981	.50495	.20735
48	.50997	.23587	11.895	.05352	.50445	.26205	.51548	.20969
49	.52066	.23809	11.565	.05329	.51534	.26420	.52602	.21199
50	.53537	.24098	11.136	.05289	.52996	.26693	.54018	.21503
51	.54945	.24376	10.703	.05239	.54459	.26950	.55432	.21801
52	.56384	.24642	10.257	.05180	.55923	.27190	.56845	.22093
53	.57823	.24896	9.808	.05112	.57387	.27415	.58258	.22378
54	.59262	.25139	9.351	.05034	.58852	.27623	.59671	.22655
55	.60703	.25370	8.888	.04948	.60318	.27815	.61082	.22925
56	.62139	.25589	8.418	.04854	.61783	.27990	.62494	.23188
57	.63578	.25796	7.942	.04752	.63249	.28149	.63906	.23442
58	.65016	.25999	7.459	.04643	.64715	.28292	.65318	.23689
59	.66455	.26172	6.969	.04526	.66180	.28419	.66729	.23926
60	.67894	.26342	6.472	.04402	.67645	.28529	.68142	.24155
61	.69332	.26499	5.969	.04272	.69110	.28623	.69554	.24374
62	.70771	.26643	5.459	.04135	.70574	.28701	.70968	.24585
63	.72210	.26774	4.943	.03993	.72038	.28763	.72382	.24785
64	.73649	.26892	4.420	.03844	.73500	.28808	.73796	.24975
65	.75087	.26996	3.891	.03691	.74962	.28837	.75212	.25155
66	.76642	.27094	3.302	.03519	.76540	.28850	.76743	.25337
67	.78197	.27175	2.687	.03342	.78118	.28844	.78275	.25506
68	.79751	.27248	2.046	.03159	.79695	.28818	.79808	.25661
69	.81336	.27286	1.379	.02972	.81271	.28772	.81342	.25801

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.82861	.27314	.686	.02780	.82845	.28734	.82878	.25924
71	.84416	.27323	-.032	.02584	.84417	.28615	.84415	.26031
72	.85971	.27312	-.777	.02385	.85987	.28505	.85955	.26120
73	.87526	.27281	-1.546	.02182	.87555	.28371	.87496	.26190
74	.89081	.27228	-2.341	.01976	.89121	.28215	.89040	.26241
75	.90636	.27153	-3.160	.01767	.90684	.28035	.90587	.26271
76	.92190	.27056	-4.003	.01555	.92245	.27832	.92136	.26280
77	.93745	.26936	-4.870	.01342	.93802	.27604	.93688	.26267
78	.95300	.26791	-5.760	.01127	.95357	.27351	.95244	.26230
79	.96855	.26622	-6.673	.00910	.96908	.27074	.96802	.26170
80	.98410	.26427	-7.607	.00692	.98456	.26770	.98364	.26084
81	.99965	.26206	-8.562	.00473	1.00000	.26440	.99930	.25972

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 14

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BETA1        = 36.926     (BLADE INLET ANGLE.)
BETA2        = -8.710     (BLADE OUTLET ANGLE.)
YZERO        =  .01229    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T            =  .05343    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE         =  .01229    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z            =  .5335     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD         = 2.3366     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0333

STAGGER ANGLE = 14.644

CAMBER ANGLE = 45.636

SECTION AREA = .03836

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .48038
YBAR = .20760

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00016
IY = .00232
IXY = .00352

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.451

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00033 (AT 14.451 WITH 'X' AXIS)
IPY = .00216 (AT 14.451 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00237	0.00000	36.926	.00473	.00094	.00189	.00379	-.00189
2	.01428	.00886	36.315	.00686	.01225	.01162	.01631	.00609
3	.02623	.01752	35.797	.00896	.02358	.02115	.02881	.01388
4	.03811	.02598	35.134	.01104	.03493	.03050	.04129	.02147
5	.05032	.03427	34.505	.01310	.04631	.03967	.05374	.02887
6	.06194	.04237	33.913	.01514	.05772	.04865	.06616	.03609
7	.07385	.05029	33.326	.01714	.06915	.05745	.07856	.04313
8	.08577	.05804	32.747	.01911	.08060	.06607	.09094	.05000
9	.09768	.06562	32.174	.02105	.09208	.07452	.10329	.05671
10	.10960	.07303	31.610	.02295	.10358	.08280	.11561	.06326
11	.12151	.08028	31.054	.02481	.11511	.09091	.12791	.06965
12	.13343	.08736	30.506	.02664	.12667	.09886	.14019	.07590
13	.14534	.09432	29.968	.02842	.13824	.10664	.15244	.08201

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.15726	.10112	29.440	.03016	.14984	.11426	.16467	.08799
15	.16917	.10778	28.922	.03186	.16147	.12172	.17688	.09383
16	.18109	.11429	28.415	.03351	.17311	.12903	.18906	.09955
17	.19330	.12067	27.920	.03512	.18478	.13618	.20122	.10515
18	.20274	.12578	27.514	.03639	.19433	.14192	.21114	.10965
19	.21247	.13081	27.094	.03763	.20390	.14756	.22104	.11406
20	.22221	.13575	26.662	.03884	.21349	.15310	.23092	.11839
21	.23194	.14059	26.217	.04000	.22311	.15853	.24078	.12264
22	.24168	.14533	25.758	.04113	.23274	.16386	.25062	.12681
23	.25141	.14998	25.286	.04223	.24240	.16907	.26043	.13089
24	.26115	.15453	24.800	.04328	.25207	.17418	.27023	.13488
25	.27088	.15898	24.300	.04430	.26177	.17916	.28000	.13879
26	.28062	.16332	23.786	.04527	.27149	.18403	.28975	.14261
27	.29036	.16756	23.257	.04621	.28123	.18878	.29948	.14633
28	.30009	.17169	22.713	.04710	.29100	.19341	.30918	.14997
29	.30983	.17571	22.155	.04794	.30079	.19791	.31887	.15351
30	.31956	.17961	21.582	.04875	.31060	.20228	.32853	.15695
31	.32930	.18341	20.993	.04951	.32043	.20652	.33817	.16030
32	.33903	.18709	20.389	.05022	.33028	.21062	.34778	.16355
33	.34877	.19064	19.769	.05089	.34016	.21459	.35737	.16670
34	.35953	.19444	19.085	.05158	.35110	.21881	.36797	.17007
35	.37030	.19810	18.421	.05221	.36205	.22286	.37855	.17333
36	.38107	.20161	17.778	.05278	.37301	.22675	.38912	.17648
37	.39183	.20500	17.157	.05330	.38397	.23047	.39969	.17954
38	.40260	.20826	16.558	.05375	.39494	.23403	.41026	.18250
39	.41337	.21141	15.983	.05415	.40591	.23743	.42082	.18538
40	.42413	.21443	15.430	.05448	.41688	.24069	.43138	.18817
41	.43490	.21735	14.902	.05475	.42786	.24381	.44194	.19089
42	.44566	.22017	14.395	.05496	.43883	.24678	.45250	.19355
43	.45643	.22288	13.920	.05511	.44980	.24963	.46306	.19613
44	.46720	.22550	13.466	.05519	.46077	.25234	.47362	.19867
45	.47796	.22804	13.039	.05521	.47173	.25493	.48419	.20115
46	.48873	.23049	12.637	.05516	.48270	.25740	.49476	.20358
47	.49949	.23287	12.262	.05505	.49365	.25976	.50534	.20597
48	.51026	.23517	11.913	.05487	.50460	.26202	.51592	.20833
49	.52103	.23741	11.591	.05463	.51554	.26417	.52652	.21065
50	.53542	.24031	11.175	.05422	.53016	.26691	.54067	.21371
51	.54981	.24310	10.750	.05371	.54480	.26948	.55482	.21671
52	.56420	.24577	10.316	.05310	.55944	.27190	.56895	.21965
53	.57859	.24834	9.874	.05240	.57410	.27415	.58308	.22253
54	.59298	.25078	9.423	.05160	.58875	.27623	.59720	.22533
55	.60737	.25311	8.963	.05071	.60342	.27816	.61132	.22806
56	.62176	.25532	8.494	.04975	.61809	.27992	.62543	.23072
57	.63615	.25741	8.017	.04869	.63275	.28152	.63954	.23330
58	.65054	.25937	7.532	.04757	.64742	.28295	.65366	.23580
59	.66493	.26121	7.037	.04636	.66209	.28422	.66777	.23821
60	.67932	.26293	6.534	.04509	.67675	.28532	.68189	.24053
61	.69371	.26451	6.022	.04375	.69142	.28626	.69601	.24276
62	.70810	.26596	5.502	.04234	.70607	.28703	.71013	.24489
63	.72249	.26728	4.973	.04087	.72072	.28764	.72426	.24692
64	.73688	.26847	4.436	.03935	.73536	.28808	.73840	.24885
65	.75127	.26951	3.890	.03777	.74999	.28835	.75255	.25067
66	.76679	.27049	3.285	.03600	.76576	.28846	.76783	.25252
67	.78232	.27129	2.654	.03418	.78153	.28837	.78311	.25422
68	.79784	.27192	1.997	.03231	.79728	.28807	.79840	.25578
69	.81336	.27237	1.316	.03038	.81301	.28756	.81371	.25718

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.82839	.27263	.610	.02842	.82874	.28684	.82904	.25843
71	.84441	.27270	-.121	.02641	.84444	.28590	.84438	.25950
72	.85933	.27257	-.876	.02436	.86012	.28474	.85975	.26039
73	.87546	.27222	-1.655	.02227	.87578	.28336	.87513	.26109
74	.89098	.27167	-2.459	.02016	.89141	.28174	.89055	.26160
75	.90650	.27089	-3.286	.01801	.90702	.27988	.90599	.26190
76	.92203	.26988	-4.135	.01584	.92260	.27778	.92145	.26198
77	.93755	.26864	-5.008	.01365	.93814	.27544	.93695	.26184
78	.95307	.26716	-5.902	.01144	.95366	.27285	.95248	.26147
79	.96860	.26543	-6.818	.00921	.96914	.27001	.96805	.26086
80	.98412	.26345	-7.754	.00698	.98459	.26690	.98365	.25999
81	.99964	.26120	-8.710	.00473	1.00000	.26354	.99928	.25886

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 15

BETA1	= 37.304	(BLADE INLET ANGLE.)
BETA2	= -8.899	(BLADE OUTLET ANGLE.)
YZERO	= .01229	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .05477	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .00229	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5000	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.3866	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

BLADE CHORD = 1.0334

STAGGER ANGLE = 14.671

CAMBER ANGLE = 46.213

SECTION AREA = .03929

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .48031
YBAR = .20817

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00016
IY = .00207
IXY = .00053

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.509

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00003 (AT 14.509 WITH 'X' AXIS)
IPY = .00221 (AT 14.509 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00236	0.00000	37.304	.00473	.00093	.00188	.00383	-.00188
2	.01414	.00887	36.635	.00689	.01208	.01163	.01620	.00610
3	.02592	.01752	35.974	.00904	.02326	.02118	.02857	.01386
4	.03770	.02597	35.320	.01116	.03447	.03052	.04092	.02141
5	.04948	.03421	34.676	.01326	.04570	.03966	.05325	.02876
6	.06125	.04226	34.042	.01533	.05696	.04861	.06554	.03591
7	.07303	.05013	33.419	.01737	.06825	.05738	.07781	.04288
8	.08481	.05781	32.808	.01937	.07956	.06595	.09006	.04967
9	.09659	.06532	32.209	.02134	.09090	.07434	.10227	.05629
10	.10837	.07265	31.623	.02327	.10226	.08256	.11447	.06274
11	.12014	.07982	31.052	.02517	.11365	.09060	.12664	.06904
12	.13192	.08684	30.496	.02703	.12506	.09848	.13878	.07519
13	.14370	.09370	29.955	.02884	.13650	.10619	.15090	.08120

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.15548	.11041	29.430	.03062	.14796	.11375	.16300	.08708
15	.16726	.10699	28.923	.03234	.15943	.12114	.17505	.09283
16	.17903	.11343	28.433	.03403	.17093	.12839	.18713	.09847
17	.19051	.11975	27.962	.03566	.18245	.13550	.19917	.10400
18	.20073	.12495	27.568	.03700	.19214	.14135	.20926	.10855
19	.21059	.13007	27.159	.03830	.20184	.14711	.21933	.11303
20	.22047	.13509	26.736	.03956	.21157	.15276	.22937	.11743
21	.23036	.14003	26.298	.04079	.22132	.15831	.23939	.12174
22	.24025	.14487	25.845	.04197	.23110	.16375	.24939	.12598
23	.25013	.14960	25.377	.04312	.24089	.16908	.25937	.13012
24	.26012	.15424	24.893	.04423	.25071	.17430	.26933	.13418
25	.26991	.15878	24.394	.04529	.26055	.17940	.27926	.13816
26	.27979	.16321	23.879	.04631	.27042	.18438	.28917	.14204
27	.28968	.16753	23.347	.04729	.28031	.18924	.29905	.14582
28	.29957	.17174	22.803	.04822	.29022	.19397	.30891	.14952
29	.30945	.17584	22.235	.04911	.30016	.19857	.31874	.15312
30	.31934	.17983	21.654	.04995	.31012	.20304	.32855	.15662
31	.32922	.18369	21.055	.05074	.32011	.20737	.33834	.16002
32	.33911	.18744	20.439	.05149	.33012	.21156	.34810	.16331
33	.34900	.19106	19.805	.05219	.34016	.21561	.35784	.16651
34	.35987	.19490	19.139	.05290	.35121	.21989	.36853	.16991
35	.37074	.19859	18.434	.05355	.36227	.22400	.37921	.17319
36	.38161	.20215	17.783	.05414	.37334	.22793	.38988	.17637
37	.39248	.20557	17.154	.05467	.38442	.23169	.40054	.17945
38	.40335	.20886	16.549	.05514	.39550	.23529	.41121	.18244
39	.41422	.21203	15.969	.05554	.40658	.23873	.42186	.18533
40	.42510	.21509	15.414	.05588	.41767	.24202	.43252	.18815
41	.43597	.21803	14.884	.05616	.42875	.24517	.44318	.19089
42	.44684	.22087	14.381	.05637	.43984	.24817	.45384	.19356
43	.45771	.22361	13.904	.05651	.45092	.25103	.46450	.19618
44	.46858	.22625	13.454	.05659	.46203	.25377	.47516	.19873
45	.47945	.22881	13.032	.05660	.47307	.25638	.48583	.20124
46	.49032	.23128	12.637	.05654	.48414	.25887	.49651	.20370
47	.50119	.23369	12.271	.05641	.49520	.26125	.50719	.20613
48	.51206	.23602	11.933	.05621	.50625	.26352	.51787	.20852
49	.52293	.23828	11.623	.05596	.51730	.26569	.52857	.21088
50	.53728	.24118	11.228	.05552	.53188	.26841	.54269	.21395
51	.55163	.24398	10.821	.05499	.54647	.27098	.55679	.21697
52	.56598	.24667	10.402	.05435	.56107	.27339	.57088	.21994
53	.58033	.24924	9.972	.05361	.57568	.27565	.58497	.22284
54	.59467	.25171	9.530	.05279	.59030	.27774	.59904	.22568
55	.60912	.25406	9.076	.05187	.60493	.27967	.61311	.22845
56	.62337	.25629	8.610	.05086	.61955	.28144	.62718	.23115
57	.63772	.25841	8.132	.04978	.63420	.28304	.64124	.23377
58	.65207	.26039	7.643	.04861	.64883	.28448	.65530	.23630
59	.66641	.26225	7.141	.04737	.66347	.28576	.66936	.23875
60	.68076	.26399	6.626	.04606	.67810	.28686	.68342	.24111
61	.69511	.26559	6.103	.04468	.69273	.28780	.69748	.24338
62	.70946	.26705	5.566	.04323	.70736	.28857	.71155	.24554
63	.72381	.26838	5.017	.04172	.72198	.28916	.72563	.24760
64	.73815	.26957	4.456	.04015	.73659	.28959	.73971	.24956
65	.75250	.27062	3.884	.03853	.75120	.28984	.75381	.25140
66	.76795	.27158	3.250	.03672	.76691	.28991	.76899	.25325
67	.78339	.27237	2.592	.03485	.78260	.28978	.78418	.25496
68	.79884	.27298	1.912	.03294	.79829	.28944	.79939	.25652
69	.81428	.27340	1.209	.03097	.81396	.28858	.81461	.25792

POINT	M E A N L I N E D A T A				SURFACE COORDINATE DATA			
NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
70	.82973	.27363	.484	.02895	.82961	.28810	.82985	.25915
71	.84518	.27366	-.264	.02689	.84524	.28711	.84511	.26021
72	.86062	.27348	-1.034	.02480	.86085	.28588	.86040	.26109
73	.87607	.27310	-1.827	.02266	.87643	.28443	.87571	.26177
74	.89151	.27250	-2.640	.02050	.89199	.28274	.89104	.26226
75	.90696	.27167	-3.475	.01831	.90751	.28081	.90643	.26254
76	.92241	.27062	-4.331	.01609	.92301	.27864	.92180	.26260
77	.93785	.26933	-5.206	.01385	.93848	.27623	.93722	.26244
78	.95330	.26780	-6.102	.01159	.95391	.27356	.95268	.26204
79	.96874	.26603	-7.016	.00931	.96931	.27065	.96817	.26141
80	.98419	.26400	-7.949	.00702	.98467	.26748	.98370	.26052
81	.99963	.26171	-8.899	.00473	1.00000	.26405	.99927	.25938

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 16
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BETA1      = 37.995     (BLADE INLET ANGLE.)
BETA2      = -9.156     (BLADE OUTLET ANGLE.)
YZERO      =  .00228    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .05604    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .00228    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .5000     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.4459     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD    = 1.0340

STAGGER ANGLE  = 14.798

CAMBER ANGLE   = 47.151

SECTION AREA   = .04022

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

        XBAR =  .47994
        YBAR =  .21321

SECOND MOMENTS OF AREA ABOUT CENTROID

        IX   =  .00017
        IY   =  .00212
        IXY  =  .00055

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.659

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

        IPX  = .00013      (AT 14.659 WITH 'X' AXIS)
        IPY  = .00226      (AT 14.659 WITH 'Y' AXIS)
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00236	0.00000	37.995	.00472	.00091	.00186	.00381	-.00186
2	.01399	.00896	37.261	.00693	.01189	.01172	.01608	.0062[illegible]
3	.02561	.01769	36.538	.00912	.02290	.02135	.02833	.01403
4	.03724	.02619	35.827	.01128	.03394	.03077	.04054	.02162
5	.04886	.03448	35.128	.01342	.04590	.03996	.05272	.02899
6	.06049	.04255	34.444	.01552	.05610	.04895	.06486	.03615
7	.07211	.05043	33.775	.01759	.06722	.05774	.07700	.04312
8	.08374	.05811	33.122	.01963	.07838	.06633	.08910	.04989
9	.09537	.06560	32.487	.02163	.08956	.07472	.10117	.05648
10	.10699	.07291	31.871	.02359	.10076	.08293	.11322	.06290
11	.11862	.08006	31.275	.02552	.11199	.09[illegible]96	.12524	.06915
12	.13024	.08704	30.700	.02740	.12325	.09882	.13724	.07526
13	.14187	.09387	30.147	.02925	.13452	.10651	.14921	.08122

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.15349	.11055	29.617	.03105	.14582	.11404	.16117	.08705
15	.16512	.10709	29.110	.03281	.15714	.12142	.17310	.09276
16	.17674	.11350	28.629	.03452	.16848	.12865	.18501	.09835
17	.18837	.11978	28.173	.03618	.17983	.13573	.19691	.10383
18	.19846	.12514	27.781	.03759	.18970	.14177	.20722	.10852
19	.20856	.13042	27.374	.03896	.19960	.14771	.21751	.11312
20	.21865	.13559	26.951	.04029	.20952	.15355	.22778	.11764
21	.22874	.14068	26.511	.04157	.21946	.15928	.23802	.12208
22	.23883	.14566	26.056	.04282	.22943	.16490	.24824	.12643
23	.24893	.15055	25.584	.04403	.23942	.17040	.25843	.13069
24	.25902	.15533	25.096	.04519	.24944	.17579	.26860	.13486
25	.26911	.16000	24.593	.04630	.25948	.18105	.27875	.13895
26	.27920	.16456	24.067	.04737	.26954	.18619	.28886	.14293
27	.28930	.16901	23.526	.04840	.27964	.19120	.29896	.14683
28	.29939	.17335	22.967	.04937	.28976	.19608	.30902	.15062
29	.30948	.17757	22.390	.05030	.29990	.20082	.31906	.15431
30	.31958	.18166	21.794	.05118	.31007	.20542	.32908	.15790
31	.32967	.18564	21.180	.05201	.32027	.20988	.33906	.16139
32	.33976	.18948	20.546	.05278	.33050	.21420	.34902	.16477
33	.34985	.19320	19.893	.05351	.34075	.21836	.35896	.16804
34	.36037	.19711	19.181	.05424	.35196	.22273	.36978	.17150
35	.37189	.20087	18.492	.05491	.36319	.22691	.38060	.17483
36	.38231	.20449	17.827	.05551	.37442	.23091	.39141	.17806
37	.39393	.20796	17.187	.05605	.38565	.23474	.40222	.18119
38	.40496	.21130	16.573	.05653	.39689	.23839	.41302	.18422
39	.41598	.21452	15.985	.05694	.40814	.24189	.42382	.18716
40	.42700	.21762	15.425	.05728	.41938	.24523	.43461	.19001
41	.43802	.22061	14.891	.05755	.43062	.24841	.44541	.19280
42	.44904	.22348	14.387	.05775	.44186	.25145	.45621	.19551
43	.46006	.22626	13.910	.05788	.45310	.25435	.46701	.19817
44	.47108	.22894	13.463	.05794	.46433	.25712	.47782	.20077
45	.48210	.23154	13.045	.05793	.47556	.25976	.48864	.20332
46	.49312	.23405	12.657	.05785	.48678	.26227	.49946	.20583
47	.50414	.23649	12.300	.05769	.49799	.26468	.51028	.20831
48	.51516	.23886	11.972	.05747	.50920	.26697	.52112	.21075
49	.52618	.24117	11.676	.05718	.52039	.26917	.53197	.21317
50	.54045	.24407	11.304	.05671	.53489	.27188	.54600	.21626
51	.55471	.24687	10.918	.05614	.54940	.27443	.56003	.21931
52	.56898	.24957	10.516	.05547	.56392	.27684	.57404	.22230
53	.58324	.25217	10.098	.05469	.57845	.27909	.58804	.22524
54	.59751	.25465	9.665	.05383	.59299	.28118	.60203	.22812
55	.61177	.25702	9.217	.05287	.60754	.28312	.61601	.23093
56	.62604	.25928	8.753	.05183	.62210	.28489	.62998	.23366
57	.64031	.26142	8.274	.05071	.63666	.28651	.64395	.23632
58	.65457	.26343	7.778	.04951	.65122	.28795	.65792	.23890
59	.66884	.26531	7.267	.04823	.66579	.28923	.67189	.24139
60	.68310	.26706	6.741	.04687	.68035	.29034	.68585	.24379
61	.69737	.26868	6.198	.04545	.69492	.29128	.69982	.24609
62	.71164	.27016	5.640	.04397	.70947	.29204	.71380	.24828
63	.72590	.27150	5.066	.04242	.72403	.29262	.72777	.25037
64	.74017	.27269	4.477	.04081	.73857	.29303	.74176	.25235
65	.75443	.27373	3.871	.03915	.75311	.29326	.75575	.25420
66	.76976	.27468	3.202	.03731	.76872	.29330	.77080	.25606
67	.78508	.27544	2.513	.03539	.78431	.29312	.78586	.25776
68	.80041	.27602	1.803	.03344	.79986	.29273	.80093	.25931
69	.81573	.27641	1.073	.03143	.81544	.29212	.81603	.26069

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83116	.27659	.323	.02938	.83097	.29128	.83114	.26191
71	.84638	.27658	-.448	.02728	.84649	.29022	.84627	.26294
72	.86170	.27635	-1.237	.02515	.86198	.28892	.86143	.26378
73	.87703	.27591	-2.046	.02297	.87744	.28739	.87662	.26443
74	.89235	.27526	-2.874	.02077	.89287	.28563	.89183	.26488
75	.90765	.27437	-3.720	.01854	.90828	.28362	.90708	.26512
76	.92300	.27326	-4.585	.01628	.92365	.28138	.92235	.26515
77	.93833	.27191	-5.466	.01400	.93899	.27888	.93766	.26495
78	.95365	.27033	-6.365	.01170	.95430	.27614	.95300	.26451
79	.96898	.26849	-7.280	.00939	.96957	.27315	.96838	.26384
80	.98430	.26641	-8.211	.00706	.98480	.26990	.98380	.26292
81	.99962	.26407	-9.156	.00472	1.00000	.26640	.99925	.26174

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 17
****

BETA1	= 39.112	(BLADE INLET ANGLE.)
BETA2	= -9.524	(BLADE OUTLET ANGLE.)
YZERO	= .01228	(BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T	= .05716	(BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE	= .03228	(BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z	= .5330	(LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD	= 2.5166	(MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.0352

STAGGER ANGLE = 15.045

CAMBER ANGLE = 48.635

SECTION AREA = .04112

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47913
YBAR = .21412

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00018
IY = .00216
IXY = .00157

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 14.906

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00003 (AT 14.906 WITH 'X' AXIS)
IPY = .00231 (AT 14.906 WITH 'Y' AXIS)

POINT	MEANLINE DATA				SURFACE COORDINATE DATA			
NUMBER	X	Y	ANGLE	THICKNESS	XS	YS	XP	YP
1	.00236	0.00000	39.112	.00472	.00087	.00183	.00385	-.00183
2	.01382	.00919	38.312	.00698	.01166	.01193	.01599	.00645
3	.02529	.01812	37.524	.00921	.02248	.02177	.02809	.01446
4	.03675	.02680	36.753	.01141	.03334	.03137	.04016	.02223
5	.04821	.03524	35.999	.01359	.04422	.04074	.05220	.02974
6	.05968	.04345	35.247	.01572	.05514	.04987	.06421	.03703
7	.07114	.05144	34.522	.01783	.06609	.05875	.07619	.04410
8	.08261	.05922	33.816	.01990	.07707	.06749	.08814	.05096
9	.09407	.06680	33.132	.02193	.08807	.07599	.10006	.05762
10	.10553	.07419	32.471	.02392	.09911	.08428	.11195	.06410
11	.11699	.08140	31.834	.02587	.11017	.09239	.12381	.07041
12	.12846	.08842	31.222	.02778	.12126	.10031	.13566	.07655
13	.13992	.09530	30.637	.02965	.13236	.10805	.14747	.08254

POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.15134	.11201	30.181	.03147	.14349	.11563	.15927	.08839
15	.16284	.11356	29.554	.03326	.15464	.12304	.17105	.09412
16	.17431	.11501	29.257	.03499	.16581	.13131	.18281	.09972
17	.18577	.12132	28.392	.03668	.17699	.13742	.19455	.10522
18	.19611	.12691	28.179	.03816	.18719	.14373	.20512	.11009
19	.20645	.13240	27.752	.03960	.19724	.14992	.21567	.11488
20	.21683	.13779	27.309	.04103	.20739	.15631	.22627	.11958
21	.22716	.14308	26.953	.04235	.21757	.16197	.23673	.12419
22	.23748	.14826	26.375	.04366	.22778	.16752	.24718	.12870
23	.24782	.15333	25.864	.04493	.23802	.17354	.25763	.13313
24	.25816	.15831	25.377	.04614	.24828	.17814	.26805	.13745
25	.26853	.16314	24.852	.04731	.25856	.18461	.27845	.14168
26	.27885	.16788	24.311	.04843	.26886	.18994	.28882	.14581
27	.28919	.17249	23.752	.04953	.27922	.19514	.29916	.14983
28	.29953	.17698	23.175	.05052	.28959	.20020	.30947	.15376
29	.30987	.18134	22.581	.05148	.29999	.20511	.31976	.15757
30	.32021	.18558	21.968	.05239	.31041	.20987	.33001	.16128
31	.33056	.18968	21.337	.05325	.32087	.21448	.34024	.16488
32	.34093	.19366	20.687	.05405	.33135	.21894	.35044	.16837
33	.35126	.19749	20.017	.05483	.34186	.22324	.36062	.17175
34	.36244	.20119	19.294	.05555	.35327	.22771	.37162	.17528
35	.37365	.20534	18.595	.05623	.36468	.23198	.38261	.17869
36	.38485	.20903	17.921	.05684	.37611	.23617	.39359	.18200
37	.39605	.21259	17.273	.05738	.38754	.23998	.40457	.18519
38	.40726	.21604	16.652	.05785	.39897	.24372	.41555	.18829
39	.41846	.21929	16.058	.05825	.41041	.24728	.42652	.19130
40	.42967	.22246	15.493	.05858	.42184	.25068	.43749	.19423
41	.44087	.22551	14.956	.05884	.43328	.25393	.44846	.19708
42	.45207	.22845	14.449	.05903	.44471	.25712	.45944	.19987
43	.46328	.23128	13.972	.05914	.45614	.25998	.47042	.20259
44	.47448	.23402	13.525	.05917	.46756	.26279	.48140	.20526
45	.48569	.23667	13.113	.05913	.47898	.26547	.49239	.20788
46	.49689	.23924	12.725	.05901	.49039	.26802	.50339	.21046
47	.50809	.24174	12.372	.05882	.50179	.27046	.51440	.21301
48	.51930	.24416	12.050	.05856	.51319	.27279	.52541	.21553
49	.53050	.24652	11.761	.05823	.52457	.27503	.53644	.21802
50	.54465	.24942	11.407	.05771	.53895	.27771	.55036	.22114
51	.55880	.25223	11.034	.05717	.55334	.28025	.56427	.22421
52	.57296	.25494	10.643	.05638	.56775	.28265	.57816	.22724
53	.58711	.25755	10.234	.05557	.58217	.28489	.59204	.23021
54	.60126	.26005	9.686	.05466	.59660	.28698	.60591	.23312
55	.61541	.26244	9.359	.05366	.61104	.28891	.61977	.23596
56	.62956	.26471	8.894	.05258	.62549	.29069	.63362	.23874
57	.64371	.26687	8.410	.05142	.63995	.29230	.64747	.24143
58	.65786	.26889	7.906	.05018	.65441	.29375	.66131	.24404
59	.67201	.27079	7.384	.04886	.66887	.29502	.67515	.24657
60	.68616	.27256	6.843	.04747	.68333	.29613	.68899	.24899
61	.70031	.27419	6.283	.04602	.69779	.29736	.70283	.25132
62	.71446	.27568	5.703	.04459	.71225	.29781	.71667	.25354
63	.72861	.27721	5.105	.04291	.72670	.29839	.73052	.25564
64	.74276	.27820	4.487	.04127	.74115	.29877	.74436	.25763
65	.75691	.27923	3.851	.03957	.75558	.29898	.75824	.25949
66	.77208	.28016	3.168	.03770	.77105	.29898	.77312	.26134
67	.78725	.28098	2.427	.03576	.78649	.29877	.78801	.26303
68	.80242	.28145	1.687	.03379	.80192	.29833	.80292	.26456
69	.81759	.28179	.927	.03174	.81733	.29766	.81784	.26592

POINT NUMBER	M E A N L I N E D A T A X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XF	YP
70	.83276	.28194	.150	.02966	.83272	.29677	.83279	.26710
71	.84792	.28187	-.647	.02754	.84808	.29554	.84777	.26810
72	.86309	.28159	-1.461	.02538	.86342	.29428	.86277	.26891
73	.87826	.28109	-2.293	.02318	.87873	.29268	.87780	.26951
74	.89343	.28038	-3.142	.02095	.89400	.29084	.89286	.26991
75	.90860	.27943	-4.007	.01869	.90925	.28875	.90795	.27010
76	.92377	.27825	-4.890	.01641	.92447	.28642	.92307	.27007
77	.93894	.27683	-5.788	.01411	.93965	.28385	.93822	.26981
78	.95410	.27517	-6.701	.01178	.95479	.28102	.95342	.26932
79	.96927	.27327	-7.628	.00944	.96990	.27794	.96865	.26859
80	.98444	.27111	-8.570	.00708	.98497	.27461	.98391	.26760
81	.99961	.26869	-9.524	.00472	1.00000	.27102	.99922	.26636

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 18
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BETA1      = 39.889     (BLADE INLET ANGLE.)
BETA2      = -9.776     (BLADE OUTLET ANGLE.)
YZERO      =  .03228    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .05907    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .03228    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .5330     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.5551     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
****

BLADE CHORD = 1.0369

STAGGER ANGLE = 15.239

CAMBER ANGLE = 49.656

SECTION AREA = .04134

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47854
YBAR = .21697

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00019
IY = .00229
IXY = .00058

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.067

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00003 (AT 15.067 WITH 'X' AXIS)
IPY = .00236 (AT 15.067 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00235	0.00000	39.883	.00472	.00085	.00161	.00387	-.00181
2	.01374	.00937	39.337	.00702	.01153	.01210	.01595	.00664
3	.02512	.01846	38.236	.00933	.02225	.02211	.02800	.01481
4	.03651	.02729	37.389	.01154	.03300	.03187	.04001	.02270
5	.04788	.03586	36.589	.01375	.04379	.04138	.05198	.03034
6	.05926	.04419	35.806	.01593	.05461	.05065	.06392	.03773
7	.07065	.05228	35.043	.01806	.06546	.05968	.07583	.04489
8	.08213	.06015	34.302	.02016	.07634	.06848	.08771	.05183
9	.09341	.06781	33.585	.02223	.08726	.07707	.09955	.05856
10	.10479	.07527	32.892	.02424	.09821	.08545	.11137	.06509
11	.11617	.08254	32.227	.02622	.10918	.09363	.12316	.07145
12	.12755	.08962	31.591	.02816	.12017	.10152	.13493	.07753
13	.13893	.09654	30.985	.03005	.13120	.10942	.14667	.08366

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.15931	.10330	30.413	.03193	.14224	.11705	.15839	.08954
15	.16169	.10998	29.869	.03371	.15330	.12452	.17009	.09529
16	.17377	.11637	29.362	.03546	.16438	.13153	.18177	.10092
17	.18445	.12271	28.893	.03717	.17547	.13899	.19344	.10644
18	.19493	.12845	28.465	.03871	.18571	.14546	.20416	.11143
19	.20541	.13407	28.025	.04019	.19597	.15182	.21486	.11633
20	.21589	.13960	27.569	.04164	.20626	.15805	.22553	.12114
21	.22637	.14502	27.098	.04304	.21657	.16417	.23617	.12586
22	.23685	.15032	26.609	.04439	.22691	.17017	.24679	.13048
23	.24733	.15551	26.105	.04569	.23728	.17603	.25738	.13500
24	.25781	.16059	25.583	.04695	.24767	.18176	.26794	.13942
25	.26829	.16555	25.045	.04815	.25809	.18736	.27848	.14374
26	.27876	.17038	24.489	.04930	.26855	.19282	.28898	.14795
27	.28924	.17509	23.915	.05040	.27903	.19813	.29946	.15206
28	.29972	.17967	23.323	.05145	.28954	.20330	.30991	.15605
29	.31020	.18413	22.713	.05244	.30008	.20831	.32032	.15994
30	.32068	.18845	22.084	.05337	.31065	.21317	.33071	.16372
31	.33116	.19263	21.437	.05425	.32125	.21788	.34107	.16736
32	.34164	.19667	20.770	.05507	.33187	.22242	.35140	.17093
33	.35212	.20058	20.084	.05583	.34253	.22679	.36170	.17436
34	.36342	.20463	19.345	.05658	.35405	.23132	.37279	.17793
35	.37473	.20852	18.633	.05727	.36558	.23565	.38387	.18138
36	.38603	.21225	17.948	.05788	.37711	.23979	.39495	.18472
37	.39733	.21584	17.290	.05843	.38865	.24374	.40602	.18795
38	.40864	.21929	16.661	.05890	.40020	.24751	.41708	.19108
39	.41994	.22261	16.062	.05930	.41174	.25110	.42815	.19412
40	.43125	.22581	15.493	.05962	.42329	.25453	.43921	.19708
41	.44255	.22888	14.954	.05987	.43483	.25780	.45028	.19996
42	.45386	.23185	14.447	.06004	.44637	.26092	.46135	.20277
43	.46516	.23471	13.972	.06014	.45790	.26389	.47242	.20553
44	.47647	.23747	13.530	.06016	.46943	.26672	.48350	.20823
45	.48777	.24015	13.120	.06009	.48095	.26941	.49459	.21089
46	.49908	.24275	12.744	.05995	.49246	.27198	.50569	.21351
47	.51038	.24527	12.401	.05974	.50397	.27444	.51679	.21609
48	.52168	.24772	12.092	.05945	.51546	.27679	.52791	.21865
49	.53299	.25011	11.817	.05909	.52694	.27903	.53904	.22119
50	.54707	.25302	11.486	.05855	.54124	.28171	.55290	.22433
51	.56116	.25583	11.132	.05791	.55557	.28424	.56675	.22743
52	.57524	.25856	10.757	.05716	.56990	.28664	.58057	.23048
53	.58932	.26118	10.359	.05632	.58426	.28888	.59438	.23348
54	.60340	.26370	9.943	.05538	.59862	.29098	.60818	.23643
55	.61749	.26612	9.498	.05436	.61300	.29292	.62197	.23931
56	.63157	.26842	9.034	.05325	.62739	.29471	.63575	.24212
57	.64565	.27059	8.547	.05206	.64179	.29633	.64952	.24485
58	.65974	.27265	8.037	.05079	.65619	.29779	.66329	.24750
59	.67382	.27457	7.505	.04944	.67059	.29908	.67705	.25006
60	.68790	.27636	6.950	.04803	.68500	.30019	.69081	.25252
61	.70199	.27800	6.372	.04654	.69940	.30113	.70457	.25487
62	.71607	.27950	5.772	.04499	.71381	.30188	.71833	.25712
63	.73015	.28085	5.148	.04338	.72821	.30245	.73210	.25924
64	.74424	.28203	4.502	.04171	.74260	.30283	.74587	.26124
65	.75832	.28306	3.832	.03999	.75698	.30301	.75966	.26311
66	.77340	.28397	3.095	.03809	.77237	.30299	.77443	.26496
67	.78848	.28469	2.341	.03613	.78774	.30274	.78922	.26664
68	.80356	.28521	1.571	.03412	.80309	.30226	.80403	.26815
69	.81864	.28552	.784	.03205	.81842	.30154	.81886	.26949

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83372	.28562	-.018	.02995	.83372	.30059	.83371	.27064
71	.84880	.28551	-.836	.02780	.84900	.29940	.84860	.27161
72	.86388	.28518	-1.659	.02561	.86425	.29798	.86351	.27238
73	.87896	.28463	-2.517	.02339	.87947	.29631	.87845	.27294
74	.89404	.28385	-3.379	.02114	.89466	.29440	.89342	.27330
75	.90912	.28284	-4.256	.01885	.90982	.29224	.90842	.27344
76	.92420	.28160	-5.145	.01654	.92494	.28984	.92346	.27337
77	.93928	.28013	-6.048	.01421	.94003	.28719	.93853	.27306
78	.95436	.27841	-6.963	.01186	.95508	.28429	.95364	.27252
79	.96944	.27644	-7.890	.00949	.97009	.28114	.96879	.27174
80	.98452	.27423	-8.828	.00711	.98506	.27774	.98397	.27071
81	.99960	.27176	-9.776	.00472	1.00000	.27408	.99920	.26943

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 19

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BETA1          = 40.814     (BLADE INLET ANGLE.)
BETA2          =-10.081     (BLADE OUTLET ANGLE.)
YZERO          =  .00228    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T              =  .05881    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE           =  .00228    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z              =  .5300     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD           = 2.5956     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY

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BLADE CHORD    = 1.0370

STAGGER ANGLE  = 15.418

CAMBER ANGLE   = 50.895

SECTION AREA   = .04248

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

        XBAR =  .47776
        YBAR =  .22035

SECOND MOMENTS OF AREA ABOUT CENTROID

        IX   =  .00123
        IY   =  .00224
        IXY  =  .00050

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.262

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

        IPX  = .00013     (AT 15.262 WITH 'X' AXIS)
        IPY  = .00243     (AT 15.262 WITH 'Y' AXIS)
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POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00236	0.00000	40.814	.00472	.00082	.00179	.00391	-.00179
2	.01366	.00961	39.929	.00707	.01139	.01232	.01593	.00690
3	.02496	.01892	39.055	.00939	.02201	.02256	.02792	.01528
4	.03626	.02795	38.196	.01167	.03266	.03253	.03987	.02336
5	.04756	.03671	37.352	.01391	.04334	.04224	.05178	.03118
6	.05886	.04520	36.528	.01612	.05407	.05168	.06366	.03873
7	.07016	.05345	35.724	.01829	.06482	.06087	.07550	.04603
8	.08146	.06146	34.943	.02042	.07562	.06983	.08731	.05309
9	.09276	.06925	34.187	.02251	.08644	.07855	.09909	.05994
10	.10406	.07682	33.458	.02455	.09730	.08706	.11083	.06657
11	.11536	.08418	32.759	.02655	.10818	.09535	.12255	.07302
12	.12666	.09136	32.090	.02851	.11909	.10344	.13424	.07929
13	.13797	.09836	31.454	.03042	.13003	.11134	.14590	.08538

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.14927	.1 519	30.853	.03229	.14098	.11915	.15755	.09133
15	.16057	.11186	30.288	.03411	.15196	.12659	.16917	.09714
16	.17187	.11839	29.760	.03589	.16296	.13397	.18077	.10282
17	.18317	.12479	29.272	.03762	.17397	.14120	.19236	.10838
18	.19379	.13069	28.824	.03920	.18434	.14786	.20324	.11352
19	.20441	.13648	28.362	.04073	.19474	.15440	.21408	.11856
20	.21503	.14216	27.884	.04222	.20516	.16082	.22490	.12350
21	.22565	.14772	27.391	.04365	.21561	.16710	.23569	.12834
22	.23627	.15316	26.882	.04504	.22609	.17325	.24646	.13308
23	.24690	.15849	26.357	.04638	.23660	.17927	.25719	.13771
24	.25752	.16369	25.816	.04767	.24714	.18514	.26790	.14223
25	.26814	.16876	25.258	.04891	.25771	.19088	.27857	.14665
26	.27876	.17371	24.683	.05008	.26830	.19646	.28922	.15096
27	.28938	.17853	24.091	.05121	.27893	.20190	.29983	.15515
28	.30000	.18321	23.482	.05227	.28959	.20718	.31042	.15924
29	.31063	.18775	22.854	.05328	.30028	.21230	.32097	.16320
30	.32125	.19216	22.209	.05424	.31100	.21727	.33150	.16705
31	.33187	.19643	21.545	.05513	.32175	.22206	.34199	.17079
32	.34249	.20055	20.863	.05596	.33253	.22669	.35246	.17440
33	.35311	.20452	20.162	.05673	.34334	.23115	.36289	.17789
34	.36452	.20863	19.413	.05749	.35497	.23574	.37408	.18151
35	.37593	.21257	18.690	.05818	.36661	.24012	.38525	.18501
36	.38734	.21635	17.995	.05879	.37826	.24431	.39642	.18839
37	.39875	.21998	17.331	.05934	.38991	.24830	.40758	.19166
38	.41016	.22347	16.695	.05980	.40156	.25211	.41875	.19483
39	.42156	.22683	16.091	.06019	.41322	.25574	.42991	.19791
40	.43297	.23005	15.519	.06051	.42488	.25920	.44107	.20090
41	.44438	.23316	14.979	.06074	.43653	.26250	.45223	.20382
42	.45579	.23616	14.472	.06090	.44818	.26565	.46340	.20668
43	.46720	.23906	13.998	.06098	.45982	.26864	.47457	.20947
44	.47861	.24185	13.558	.06097	.47146	.27149	.48575	.21222
45	.49001	.24456	13.153	.06089	.48309	.27420	.49694	.21492
46	.50142	.24719	12.783	.06072	.49470	.27680	.50814	.21758
47	.51283	.24974	12.448	.06048	.50631	.27927	.51935	.22021
48	.52424	.25223	12.148	.06017	.51791	.28164	.53057	.22282
49	.53565	.25465	11.885	.05978	.52949	.28390	.54180	.22540
50	.54966	.25756	11.571	.05921	.54372	.28656	.55560	.22856
51	.56367	.26039	11.232	.05853	.55797	.28909	.56937	.23168
52	.57768	.26312	10.868	.05776	.57223	.29148	.58312	.23477
53	.59169	.26577	10.479	.05688	.58652	.29373	.59686	.23780
54	.60570	.26831	10.065	.05592	.60081	.29584	.61059	.24077
55	.61971	.27074	9.625	.05487	.61512	.29779	.62430	.24369
56	.63372	.27306	9.160	.05374	.62944	.29958	.63800	.24653
57	.64773	.27525	8.669	.05252	.64377	.30121	.65169	.24929
58	.66174	.27733	8.153	.05122	.65811	.30268	.66537	.25197
59	.67575	.27927	7.610	.04986	.67245	.30337	.67905	.25456
60	.68976	.28107	7.042	.04842	.68680	.30519	.69273	.25704
61	.70377	.28273	6.447	.04691	.70114	.30603	.70641	.25942
62	.71778	.28423	5.826	.04534	.71548	.30678	.72009	.26168
63	.73179	.28558	5.179	.04371	.72982	.30735	.73377	.26382
64	.74580	.28677	4.536	.04202	.74415	.30771	.74746	.26583
65	.75982	.28779	3.807	.04027	.75848	.30788	.76115	.26770
66	.77453	.28869	3.037	.03835	.77379	.30783	.77582	.26954
67	.78973	.28938	2.253	.03637	.78907	.30755	.79050	.27121
68	.80477	.28986	1.454	.03434	.80434	.30703	.80521	.27270
69	.81976	.29014	.641	.03226	.81958	.30627	.81994	.27401

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83474	.29020	-.186	.03014	.83479	.30527	.83469	.27513
71	.84973	.29004	-1.027	.02797	.84998	.30402	.84948	.27606
72	.86472	.28966	-1.880	.02577	.86514	.30254	.86429	.27678
73	.87970	.28905	-2.747	.02353	.88026	.30081	.87914	.27730
74	.89469	.28822	-3.626	.02126	.89536	.29883	.89401	.27761
75	.90967	.28715	-4.517	.01896	.91042	.29660	.90893	.27770
76	.92466	.28585	-5.419	.01663	.92544	.29413	.92387	.27757
77	.93964	.28431	-6.332	.01428	.94043	.29141	.93886	.27721
78	.95463	.28252	-7.256	.01191	.95538	.28843	.95388	.27661
79	.96962	.28049	-8.189	.00953	.97029	.28521	.96894	.27578
80	.98460	.27821	-9.131	.00713	.98517	.28173	.98403	.27469
81	.99959	.27567	-10.081	.00472	1.00000	.27800	.99917	.27335

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                    STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 20
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BETA1          = 41.939      (BLADE INLET ANGLE.)
BETA2          =-10.451      (BLADE OUTLET ANGLE.)
YZERO          =   .01228    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T              =   .05943    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE           =   .01228    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z              =   .5000     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD           = 2.6380      (MERIDIONAL CHORD OF SECTION.)

NORMALISED RESULTS - ALL THE FOLLOWING REFER TO ABLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD     = 1.0383

STAGGER ANGLE   = 15.674

CAMBER ANGLE    = 52.390

SECTION AREA    = .04308

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

          XBAR =   .47675
          YBAR =   .22466

SECOND MOMENTS OF AREA ABOUT CENTROID

          IX    =   .00021
          IY    =   .00227
          IXY   =   .00062

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.492

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

          IPX  = .00003       (AT 15.492 WITH 'X' AXIS)
          IPY  = .00244       (AT 15.492 WITH 'Y' AXIS)
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POINT NUMBER	MEAN LINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00237	0.00000	41.939	.00473	.00078	.00176	.00395	-.00176
2	.01359	.00992	41.008	.00713	.01125	.01261	.01593	.00723
3	.02481	.01952	40.088	.00948	.02176	.02315	.02787	.01589
4	.03603	.02882	39.182	.01181	.03231	.03339	.03976	.02424
5	.04726	.03782	38.292	.01409	.04289	.04335	.05162	.03229
6	.05848	.04654	37.420	.01633	.05352	.05303	.06344	.04006
7	.06970	.05500	36.569	.01853	.06418	.06244	.07522	.04756
8	.08093	.06320	35.742	.02069	.07488	.07159	.08697	.05480
9	.09215	.07116	34.942	.02280	.08562	.08050	.09868	.06181
10	.10337	.07889	34.169	.02487	.09639	.08917	.11036	.06860
11	.11459	.08640	33.428	.02689	.10719	.09762	.12200	.07518
12	.12582	.09371	32.721	.02887	.11801	.10585	.13362	.08156
13	.13704	.10982	32.047	.03080	.12887	.11388	.14521	.08777

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.14826	.10776	31.411	.03269	.13975	.12171	.15678	.09381
15	.15949	.11453	30.814	.03452	.15064	.12936	.16833	.09971
16	.17071	.12115	30.258	.03631	.16156	.13684	.17986	.10547
17	.18193	.12763	29.745	.03805	.17249	.14415	.19137	.11111
18	.19270	.13373	29.267	.03968	.18301	.15103	.20240	.11642
19	.20347	.13970	28.775	.04125	.19354	.15778	.21340	.12162
20	.21424	.14555	28.268	.04278	.20411	.16439	.22437	.12672
21	.22501	.15128	27.747	.04426	.21471	.17087	.23531	.13170
22	.23578	.15688	27.211	.04568	.22533	.17720	.24622	.13657
23	.24655	.16236	26.659	.04705	.23599	.18338	.25710	.14133
24	.25732	.16770	26.093	.04837	.24668	.18941	.26795	.14598
25	.26815	.17290	25.510	.04963	.25740	.19530	.27877	.15051
26	.27885	.17797	24.912	.05083	.26815	.20102	.28956	.15492
27	.28962	.18291	24.298	.05197	.27893	.20659	.30032	.15922
28	.30039	.18770	23.667	.05306	.28974	.21200	.31104	.16340
29	.31116	.19234	23.019	.05409	.30059	.21723	.32174	.16745
30	.32193	.19685	22.355	.05505	.31146	.22230	.33240	.17139
31	.33270	.20120	21.673	.05596	.32237	.22720	.34303	.17520
32	.34347	.20541	20.974	.05680	.33330	.23192	.35363	.17889
33	.35424	.20946	20.258	.05757	.34427	.23646	.36421	.18245
34	.36575	.21362	19.496	.05833	.35602	.24111	.37549	.18612
35	.37726	.21761	18.763	.05902	.36777	.24555	.38676	.18967
36	.38878	.22144	18.059	.05963	.37954	.24979	.39802	.19310
37	.40029	.22512	17.386	.06016	.39130	.25383	.40928	.19642
38	.41180	.22866	16.745	.06062	.40307	.25768	.42054	.19963
39	.42332	.23205	16.135	.06100	.41484	.26135	.43179	.20276
40	.43483	.23532	15.559	.06130	.42661	.26485	.44305	.20580
41	.44634	.23847	15.017	.06152	.43838	.26818	.45431	.20876
42	.45786	.24150	14.509	.06165	.45013	.27134	.46558	.21166
43	.46937	.24443	14.036	.06171	.46189	.27436	.47685	.21450
44	.48088	.24726	13.598	.06168	.47363	.27723	.48813	.21729
45	.49240	.25000	13.197	.06157	.48537	.27997	.49943	.22003
46	.50391	.25266	12.832	.06137	.49710	.28256	.51073	.22274
47	.51542	.25525	12.504	.06110	.50881	.28508	.52204	.22542
48	.52694	.25777	12.214	.06076	.52051	.28746	.53336	.22808
49	.53845	.26024	11.960	.06034	.53220	.28975	.54470	.23072
50	.55238	.26315	11.662	.05973	.54635	.29240	.55842	.23390
51	.56632	.26599	11.337	.05903	.56052	.29492	.57212	.23705
52	.58025	.26874	10.983	.05822	.57470	.29731	.58580	.24016
53	.59418	.27139	10.601	.05733	.58891	.29957	.59946	.24322
54	.60812	.27395	10.191	.05634	.60313	.30167	.61310	.24623
55	.62205	.27640	9.753	.05526	.61737	.30363	.62673	.24917
56	.63598	.27874	9.286	.05410	.63162	.30543	.64035	.25204
57	.64992	.28095	8.790	.05286	.64588	.30707	.65395	.25483
58	.66385	.28304	8.265	.05154	.66014	.30855	.66755	.25754
59	.67778	.28500	7.711	.05015	.67442	.30985	.68115	.26015
60	.69172	.28681	7.127	.04869	.68870	.31097	.69474	.26266
61	.70565	.28848	6.514	.04717	.70297	.31191	.70832	.26505
62	.71959	.28999	5.872	.04558	.71725	.31266	.72191	.26733
63	.73352	.29134	5.200	.04393	.73152	.31322	.73551	.26947
64	.74745	.29253	4.499	.04222	.74579	.31357	.74910	.27148
65	.76138	.29353	3.768	.04046	.76005	.31372	.76271	.27335
66	.77627	.29441	2.965	.03852	.77527	.31365	.77726	.27518
67	.79116	.29508	2.149	.03653	.79047	.31333	.79184	.27682
68	.80604	.29553	1.319	.03449	.80564	.31277	.80644	.27829
69	.82093	.29576	.478	.03239	.82079	.31196	.82106	.27956

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83582	.29577	-.377	.03026	.83592	.31090	.83572	.28365
71	.85070	.29556	-1.243	.02808	.85101	.30960	.85040	.28153
72	.86559	.29513	-2.120	.02587	.86607	.30805	.86511	.28220
73	.88048	.29446	-3.009	.02362	.88110	.30625	.87986	.28267
74	.89536	.29356	-3.908	.02134	.89609	.30420	.89464	.28292
75	.91025	.29243	-4.817	.01903	.91105	.30191	.90945	.28295
76	.92514	.29105	-5.736	.01669	.92597	.29935	.92430	.28275
77	.94002	.28943	-6.663	.01433	.94086	.29655	.93919	.28232
78	.95491	.28757	-7.599	.01195	.95570	.29350	.95412	.28165
79	.96980	.28546	-8.543	.00956	.97051	.29019	.96909	.28073
80	.98468	.28310	-9.493	.00715	.98527	.28662	.98409	.27957
81	.99957	.28048	-10.451	.00473	1.00000	.28281	.99914	.27815

STREAMSURFACE GEOMETRY ON STREAMLINE NUMBER 21
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BETA1      = 43.286     (BLADE INLET ANGLE.)
BETA2      =-10.904     (BLADE OUTLET ANGLE.)
YZERO      =  .00228    (BLADE LEADING EDGE RADIUS AS A FRACTION OF CHORD.)
T          =  .06000    (BLADE MAXIMUM THICKNESS AS A FRACTION OF CHORD.)
YONE       =  .00228    (BLADE TRAILING EDGE HALF-THICKNESS AS A FRACTION OF CHORD.)
Z          =  .5000     (LOCATION OF MAXIMUM THICKNESS AS A FRACTION OF MEAN LINE.)
CORD       = 2.6825     (MERIDIONAL CHORD OF SECTION.)
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NORMALISED RESULTS - ALL THE FOLLOWING REFER TO A BLADE HAVING A MERIDIONAL CHORD PROJECTION OF UNITY
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BLADE CHORD = 1.0395

STAGGER ANGLE = 15.979

CAMBER ANGLE = 54.190

SECTION AREA = .04368

LOCATION OF CENTROID RELATIVE TO LEADING EDGE

XBAR = .47548
YBAR = .22988

SECOND MOMENTS OF AREA ABOUT CENTROID

IX = .00022
IY = .00231
IXY = .00064

ANGLE OF INCLINATION OF (ONE) PRINCIPAL AXIS TO 'X' AXIS = 15.756

PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID

IPX = .00033 (AT 15.756 WITH 'X' AXIS)
IPY = .00249 (AT 15.756 WITH 'Y' AXIS)

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
1	.00237	0.00000	43.286	.00474	.00075	.00173	.00400	-.00173
2	.01352	.01033	42.306	.00719	.01110	.01298	.01594	.00767
3	.02467	.02030	41.334	.00960	.02150	.02391	.02785	.01670
4	.03583	.02995	40.375	.01197	.03195	.03451	.03970	.02539
5	.04698	.03927	39.431	.01429	.04244	.04479	.05152	.03375
6	.05813	.04829	38.505	.01657	.05297	.05476	.06329	.04181
7	.06928	.05702	37.599	.01881	.06355	.06447	.07502	.04957
8	.08044	.06548	36.718	.02100	.07416	.07389	.08671	.05706
9	.09159	.07366	35.863	.02314	.08481	.08304	.09837	.06429
10	.10274	.08160	35.038	.02524	.09550	.09193	.10998	.07127
11	.11389	.08931	34.245	.02728	.10622	.10058	.12157	.07803
12	.12504	.09679	33.487	.02926	.11697	.10900	.13312	.08458
13	.13620	.10407	32.767	.03123	.12774	.11720	.14465	.09094

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
14	.14735	.11115	32.087	.03313	.13855	.12519	.15615	.09712
15	.15857	.11806	31.449	.03498	.14937	.13298	.16763	.10314
16	.16965	.12480	30.856	.03679	.16022	.14059	.17909	.10901
17	.18050	.13139	30.303	.03854	.17108	.14802	.19053	.11475
18	.19172	.13770	29.791	.04021	.18174	.15515	.20171	.12026
19	.20264	.14389	29.259	.04182	.19242	.16213	.21286	.12565
20	.21356	.14994	28.715	.04339	.20314	.16897	.22399	.13091
21	.22448	.15585	28.158	.04493	.21389	.17565	.23508	.13606
22	.23540	.16163	27.587	.04635	.22467	.18217	.24614	.14109
23	.24632	.16726	27.003	.04775	.23548	.18854	.25716	.14599
24	.25724	.17276	26.405	.04909	.24633	.19474	.26816	.15077
25	.26816	.17811	25.792	.05038	.25720	.20079	.27912	.15543
26	.27908	.18331	25.166	.05160	.26811	.20666	.29005	.15996
27	.29000	.18837	24.525	.05276	.27905	.21237	.30095	.16437
28	.30092	.19327	23.869	.05387	.29002	.21790	.31182	.16865
29	.31184	.19803	23.199	.05490	.30103	.22326	.32265	.17280
30	.32276	.20263	22.514	.05588	.31206	.22844	.33346	.17682
31	.33368	.20708	21.813	.05679	.32313	.23344	.34423	.18072
32	.34460	.21137	21.097	.05763	.33423	.23826	.35497	.18449
33	.35552	.21551	20.366	.05841	.34536	.24289	.36568	.18813
34	.36714	.21973	19.594	.05917	.35722	.24760	.37706	.19186
35	.37875	.22378	18.852	.05984	.36908	.25210	.38842	.19546
36	.39037	.22767	18.140	.06044	.38095	.25639	.39978	.19895
37	.40199	.23140	17.459	.06097	.39284	.26047	.41113	.20232
38	.41360	.23498	16.811	.06141	.40472	.26437	.42248	.20558
39	.42522	.23842	16.197	.06177	.41661	.26808	.43383	.20876
40	.43684	.24173	15.616	.06205	.42849	.27161	.44519	.21185
41	.44845	.24491	15.071	.06225	.44036	.27497	.45655	.21486
42	.46007	.24799	14.561	.06236	.45223	.27817	.46791	.21781
43	.47169	.25095	14.088	.06239	.46409	.28121	.47928	.22070
44	.48330	.25382	13.651	.06233	.47595	.28410	.49066	.22354
45	.49492	.25662	13.252	.06219	.48779	.28686	.50205	.22633
46	.50654	.25929	12.891	.06196	.49963	.28950	.51345	.22909
47	.51815	.26192	12.567	.06166	.51145	.29201	.52486	.23183
48	.52977	.26445	12.282	.06125	.52325	.29442	.53629	.23454
49	.54139	.26698	12.036	.06083	.53505	.29672	.54773	.23723
50	.55524	.26990	11.750	.06019	.54911	.29936	.56137	.24043
51	.56909	.27274	11.434	.05945	.56320	.30188	.57498	.24360
52	.58294	.27550	11.087	.05862	.57731	.30426	.58858	.24673
53	.59679	.27816	10.739	.05769	.59143	.30651	.60215	.24982
54	.61065	.28073	10.301	.05665	.60558	.30862	.61571	.25285
55	.62450	.28320	9.861	.05558	.61974	.31057	.62926	.25582
56	.63835	.28555	9.389	.05439	.63391	.31238	.64279	.25872
57	.65223	.28776	8.887	.05313	.64813	.31402	.65631	.26153
58	.66605	.28988	8.352	.05179	.66229	.31550	.66981	.26426
59	.67991	.29184	7.785	.05038	.67649	.31680	.68332	.26688
60	.69376	.29366	7.187	.04893	.69070	.31792	.69682	.26940
61	.70761	.29533	6.556	.04735	.70491	.31885	.71031	.27181
62	.72146	.29684	5.893	.04575	.71911	.31960	.72381	.27409
63	.73531	.29819	5.197	.04408	.73332	.32014	.73731	.27624
64	.74916	.29936	4.469	.04236	.74751	.32048	.75081	.27824
65	.76302	.30035	3.709	.04059	.76170	.32060	.76433	.28010
66	.77787	.30120	2.874	.03864	.77683	.32049	.77877	.28191
67	.79252	.30183	2.026	.03663	.79194	.32014	.79323	.28353
68	.80737	.30225	1.167	.03458	.80701	.31953	.80772	.28496
69	.82215	.30243	.295	.03248	.82207	.31868	.82223	.28619

POINT NUMBER	MEANLINE DATA X	Y	ANGLE	THICKNESS	SURFACE COORDINATE DATA XS	YS	XP	YP
70	.83693	.30240	-.587	.03034	.83709	.31757	.83678	.28723
71	.85172	.30213	-1.461	.02815	.85208	.31620	.85135	.28806
72	.86651	.30163	-2.385	.02593	.86704	.31459	.86596	.28868
73	.88128	.30090	-3.299	.02368	.88197	.31272	.88060	.28908
74	.89607	.29993	-4.223	.02139	.89685	.31059	.89528	.28926
75	.91085	.29871	-5.155	.01907	.91171	.30821	.90999	.28922
76	.92563	.29726	-6.096	.01673	.92652	.30558	.92475	.28894
77	.94042	.29556	-7.045	.01437	.94130	.30269	.93954	.28843
78	.95521	.29369	-8.000	.01198	.95604	.29954	.95437	.28767
79	.96998	.29140	-8.963	.00958	.97073	.29613	.96924	.28667
80	.98477	.28894	-9.931	.00717	.98539	.29247	.98415	.28541
81	.99955	.28622	-10.904	.00474	1.00003	.28855	.99910	.28389

BLADE SURFACE GEOMETRY IN CARTESIAN COORDINATES AT SPECIFIED VALUES OF 'Z'

SECTION NUMBER 1 'Z' = 4.7500

SECTION PROPERTIES	SECTION AREA		= 1.8661E-01
	LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	= -1.5069E+00
		YBAR	= -2.6848E-01
	SECOND MOMENTS OF AREA ABOUT CENTROID	IX	= 9.4748E-03
		IY	= 4.6283E-02
		IXY	= 1.3892E-02
	PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	= 7.7885E-04 (AT 23.61 DEGREES TO 'X' AXIS)
		IPY	= 5.4979E-02 (AT 23.61 DEGREES TO 'Y' AXIS)
	TORSIONAL CONSTANT		= 5.7669E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.43762E+00	-8.79762E-01	-2.43165E+00	-8.83026E-01
2	-2.41451E+00	-8.52955E-01	-2.40579E+00	-8.67249E-01
3	-2.39160E+00	-8.26316E-01	-2.37958E+00	-8.45730E-01
4	-2.36812E+00	-7.99536E-01	-2.35308E+00	-8.24111E-01
5	-2.34416E+00	-7.72694E-01	-2.32633E+00	-8.02538E-01
6	-2.31944E+00	-7.45668E-01	-2.29936E+00	-7.80848E-01
7	-2.29518E+00	-7.18599E-01	-2.27208E+00	-7.59095E-01
8	-2.26919E+00	-6.91390E-01	-2.24435E+00	-7.36992E-01
9	-2.24413E+00	-6.63734E-01	-2.21602E+00	-7.14700E-01
10	-2.21746E+00	-6.35997E-01	-2.18700E+00	-6.92057E-01
11	-2.18937E+00	-6.07865E-01	-2.15721E+00	-6.69285E-01
12	-2.16156E+00	-5.79713E-01	-2.12662E+00	-6.45979E-01
13	-2.13271E+00	-5.51064E-01	-2.09512E+00	-6.22643E-01
14	-2.10139E+00	-5.22575E-01	-2.06266E+00	-5.98797E-01
15	-2.06955E+00	-4.93584E-01	-2.02914E+00	-5.74825E-01
16	-2.03636E+00	-4.64872E-01	-1.99450E+00	-5.50610E-01
17	-2.00774E+00	-4.35782E-01	-1.95863E+00	-5.26264E-01
18	-1.97751E+00	-4.16399E-01	-1.93395E+00	-5.09635E-01
19	-1.95295E+00	-3.97131E-01	-1.90906E+00	-4.93263E-01
20	-1.92814E+00	-3.74220E-01	-1.88395E+00	-4.77092E-01
21	-1.90274E+00	-3.58678E-01	-1.85860E+00	-4.61310E-01
22	-1.87717E+00	-3.41626E-01	-1.83304E+00	-4.45734E-01
23	-1.85111E+00	-3.24178E-01	-1.80718E+00	-4.30186E-01
24	-1.82456E+00	-3.07044E-01	-1.78105E+00	-4.14833E-01
25	-1.79771E+00	-2.91122E-01	-1.75463E+00	-3.99697E-01
26	-1.77051E+00	-2.71660E-01	-1.72792E+00	-3.84767E-01
27	-1.74265E+00	-2.57598E-01	-1.70095E+00	-3.70312E-01
28	-1.71479E+00	-2.42121E-01	-1.67360E+00	-3.55911E-01
29	-1.68671E+00	-2.27274E-01	-1.64592E+00	-3.41456E-01
30	-1.65742E+00	-2.12567E-01	-1.61788E+00	-3.27164E-01
31	-1.62814E+00	-1.99167E-01	-1.58948E+00	-3.12987E-01
32	-1.59851E+00	-1.84121E-01	-1.56074E+00	-2.98905E-01
33	-1.56841E+00	-1.73476E-01	-1.53167E+00	-2.85310E-01
34	-1.53722E+00	-1.57158E-01	-1.50152E+00	-2.71157E-01

POINT NO	XS	YS	XP	YP
35	-1.50559E+00	-1.44257E-01	-1.47100E+00	-2.56833E-01
36	-1.47354E+00	-1.31309E-01	-1.44009E+00	-2.42640E-01
37	-1.44103E+00	-1.18616E-01	-1.40878E+00	-2.28640E-01
38	-1.40507E+00	-1.06380E-01	-1.37706E+00	-2.15092E-01
39	-1.37468E+00	-9.43211E-02	-1.34502E+00	-2.01360E-01
40	-1.34084E+00	-8.32428E-02	-1.31247E+00	-1.87510E-01
41	-1.30645E+00	-7.19222E-02	-1.27941E+00	-1.73877E-01
42	-1.27150E+00	-6.09146E-02	-1.24587E+00	-1.60632E-01
43	-1.236 2E+00	-5.05417E-02	-1.21186E+00	-1.47772E-01
44	-1.20000E+00	-4.06696E-02	-1.17736E+00	-1.34733E-01
45	-1.16343E+00	-3.07458E-02	-1.14237E+00	-1.21800E-01
46	-1.12629E+00	-2.12136E-02	-1.10694E+00	-1.09154E-01
47	-1.08856E+00	-1.21471E-02	-1.07094E+00	-9.71261E-02
48	-1.05029E+00	-4.05336E-03	-1.03430E+00	-8.55670E-02
49	-1.01145E+00	3.87995E-03	-9.97115E-01	-7.39068E-02
50	-9.86212E-01	8.79963E-03	-9.73026E-01	-6.65406E-02
51	-9.60842E-01	1.33348E-02	-9.48943E-01	-5.94824E-02
52	-9.35504E-01	1.75586E-02	-9.24996E-01	-5.27187E-02
53	-9.10136E-01	2.14784E-02	-9.00793E-01	-4.62568E-02
54	-8.85309E-01	2.50946E-02	-8.76560E-01	-4.00860E-02
55	-8.59838E-01	2.84527E-02	-8.52297E-01	-3.42424E-02
56	-8.34563E-01	3.13590E-02	-8.28122E-01	-2.89557E-02
57	-8.09315E-01	3.36548E-02	-8.03845E-01	-2.41962E-02
58	-7.84007E-01	3.55892E-02	-7.79443E-01	-1.97776E-02
59	-7.58952E-01	3.72230E-02	-7.55007E-01	-1.56893E-02
60	-7.33925E-01	3.85565E-02	-7.30540E-01	-1.18802E-02
61	-7.08753E-01	3.98885E-02	-7.06203E-01	-8.07243E-03
62	-6.83633E-01	4.11549E-02	-6.81637E-01	-4.44170E-03
63	-6.58535E-01	4.21740E-02	-6.57040E-01	-1.09478E-03
64	-6.33469E-01	4.29526E-02	-6.32414E-01	1.97556E-03
65	-6.08577E-01	4.35342E-02	-6.07804E-01	4.82979E-03
66	-5.81271E-01	4.37597E-02	-5.80954E-01	7.34756E-03
67	-5.53989E-01	4.27274E-02	-5.53990E-01	8.70739E-03
68	-5.26724E-01	4.14430E-02	-5.27004E-01	9.75092E-03
69	-4.99478E-01	3.98276E-02	-4.99993E-01	1.04136E-02
70	-4.72246E-01	3.95285E-02	-4.72962E-01	1.23151E-02
71	-4.45029E-01	3.87486E-02	-4.45910E-01	1.36841E-02
72	-4.17825E-01	3.62414E-02	-4.18835E-01	1.32705E-02
73	-3.90645E-01	3.34551E-02	-3.91787E-01	1.25165E-02
74	-3.63492E-01	3.05267E-02	-3.64664E-01	1.15542E-02
75	-3.36296E-01	2.74381E-02	-3.37505E-01	1.03609E-02
76	-3.09113E-01	2.53965E-02	-3.10320E-01	1.02026E-02
77	-2.81912E-01	2.14075E-02	-2.83109E-01	8.06398E-03
78	-2.54719E-01	1.73017E-02	-2.55870E-01	5.71268E-03
79	-2.27524E-01	1.29250E-02	-2.28600E-01	3.35051E-03
80	-2.00320E-01	8.27935E-03	-2.01294E-01	7.75820E-05
81	-1.73108E-01	3.34941E-03	-1.73956E-01	-3.21827E-03

POINT NO	XSEMI	YSEMI
1	-2.43165E+00	-8.89026E-01
2	-2.43193E+00	-8.89264E-01
3	-2.43224E+00	-8.89448E-01
4	-2.43257E+00	-8.89576E-01
5	-2.43292E+00	-8.89648E-01
6	-2.43330E+00	-8.89663E-01
7	-2.43368E+00	-8.89620E-01

POINT NO	XSEMI	YSEMI
8	-2.434[illegible]8E+00	-8.83519E-01
9	-2.43449E+00	-8.89362E-01
10	-2.43459E+00	-8.89151E-01
11	-2.43530E+00	-8.88868E-01
12	-2.43569E+00	-8.88575E-01
13	-2.43618E+00	-8.88217E-01
14	-2.43645E+00	-8.87817E-01
15	-2.43680E+00	-8.87379E-01
16	-2.43712E+00	-8.86909E-01
17	-2.43742E+00	-8.86411E-01
18	-2.43759E+00	-8.85891E-01
19	-2.43792E+00	-8.85355E-01
20	-2.43812E+00	-8.84808E-01
21	-2.43828E+00	-8.84256E-01
22	-2.43840E+00	-8.83706E-01
23	-2.43848E+00	-8.83164E-01
24	-2.43852E+00	-8.82635E-01
25	-2.43851E+00	-8.82125E-01
26	-2.43846E+00	-8.81640E-01
27	-2.43837E+00	-8.81186E-01
28	-2.43824E+00	-8.80766E-01
29	-2.438[illegible]7E+00	-8.80386E-01
30	-2.43786E+00	-8.80051E-01
31	-2.43762E+00	-8.79762E-01

SECTION NUMBER 2 'Z' = 5.1250

SECTION PROPERTIES

SECTION AREA		=	1.7467E-01
LOCATION OF CENTROID	XBAR	=	-1.3309E+00
RELATIVE TO STACK AXIS	YBAR	=	-2.0842E-01
SECOND MOMENTS OF AREA	IX	=	6.4246E-03
ABOUT CENTROID	IY	=	4.2648E-02
	IXY	=	1.5684E-02
PRINCIPAL SECOND MOMENTS	IPX	=	5.7772E-04 (AT 20.45 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	=	4.8495E-02 (AT 20.45 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	4.9641E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.29737E+00	-7.57210E-01	-2.29127E+00	-7.66033E-01
2	-2.27456E+00	-7.32962E-01	-2.26586E+00	-7.45849E-01
3	-2.25154E+00	-7.09049E-01	-2.24029E+00	-7.26050E-01
4	-2.22826E+00	-6.85409E-01	-2.21457E+00	-7.06529E-01
5	-2.20477E+00	-6.61998E-01	-2.18870E+00	-6.87168E-01
6	-2.18110E+00	-6.38637E-01	-2.16265E+00	-6.68127E-01
7	-2.15694E+00	-6.15614E-01	-2.13639E+00	-6.49265E-01
8	-2.13255E+00	-5.92729E-01	-2.10989E+00	-6.30596E-01
9	-2.10790E+00	-5.70056E-01	-2.08309E+00	-6.12150E-01

POINT NO	XS	YS	XP	YP
10	-2.08264E+00	-5.47565E-01	-2.05596E+00	-5.93865E-01
11	-2.057[illegible]2E+00	-5.25230E-01	-2.02844E+00	-5.75734E-01
12	-2.03189E+00	-5.03036E-01	-2.00048E+00	-5.57722E-01
13	-2.00426E+00	-4.8[illegible]946E-01	-1.97201E+00	-5.39881E-01
14	-1.97698E+00	-4.59019E-01	-1.94297E+00	-5.22089E-01
15	-1.94933E+00	-4.37140E-01	-1.91336E+00	-5.04414E-01
16	-1.92222E+00	-4.15353E-01	-1.88315E+00	-4.86777E-01
17	-1.89392E+00	-3.93673E-01	-1.85234E+00	-4.69159E-01
18	-1.86651E+00	-3.75154E-01	-1.82712E+00	-4.54997E-01
19	-1.84198E+00	-3.58930E-01	-1.80182E+00	-4.41014E-01
20	-1.81723E+00	-3.41921E-01	-1.77646E+00	-4.27213E-01
21	-1.79230E+00	-3.25244E-01	-1.75108E+00	-4.13550E-01
22	-1.76719E+00	-3.08869E-01	-1.72568E+00	-4.00044E-01
23	-1.74193E+00	-2.92781E-01	-1.70031E+00	-3.86723E-01
24	-1.71654E+00	-2.77036E-01	-1.67498E+00	-3.73578E-01
25	-1.691[illegible]4E+00	-2.61666E-01	-1.64971E+00	-3.60603E-01
26	-1.66545E+00	-2.45683E-01	-1.62446E+00	-3.47739E-01
27	-1.63972E+00	-2.32095E-01	-1.59914E+00	-3.35159E-01
28	-1.61358E+00	-2.17897E-01	-1.57368E+00	-3.22675E-01
29	-1.58764E+00	-2.04079E-01	-1.54803E+00	-3.10352E-01
30	-1.56118E+00	-1.90617E-01	-1.52217E+00	-2.98205E-01
31	-1.53441E+00	-1.77532E-01	-1.49608E+00	-2.86227E-01
32	-1.50733E+00	-1.64831E-01	-1.46976E+00	-2.74406E-01
33	-1.47991E+00	-1.52521E-01	-1.44319E+00	-2.62790E-01
34	-1.45127E+00	-1.40245E-01	-1.41548E+00	-2.50866E-01
35	-1.42234E+00	-1.28360E-01	-1.38750E+00	-2.39030E-01
36	-1.393[illegible]1E+00	-1.16794E-01	-1.35925E+00	-2.27344E-01
37	-1.36339E+00	-1.05588E-01	-1.33072E+00	-2.15817E-01
38	-1.33344E+00	-9.47852E-02	-1.30189E+00	-2.04500E-01
39	-1.30315E+00	-8.44227E-02	-1.27279E+00	-1.93215E-01
40	-1.27253E+00	-7.43226E-02	-1.24335E+00	-1.81985E-01
41	-1.24154E+00	-6.44814E-02	-1.21356E+00	-1.70912E-01
42	-1.21016E+00	-5.51053E-02	-1.18343E+00	-1.60053E-01
43	-1.17842E+00	-4.59583E-02	-1.15295E+00	-1.49388E-01
44	-1.14629E+00	-3.72792E-02	-1.12211E+00	-1.38729E-01
45	-1.11376E+00	-2.87733E-02	-1.09091E+00	-1.28184E-01
46	-1.08094E+00	-2.05062E-02	-1.05935E+00	-1.17823E-01
47	-1.04750E+00	-1.28027E-02	-1.02739E+00	-1.07773E-01
48	-1.01376E+00	-5.55563E-03	-9.94995E-01	-9.79722E-02
49	-9.796[illegible]7E-01	1.46740E-03	-9.62185E-01	-8.81994E-02
50	-9.53010E-01	6.66782E-03	-9.36708E-01	-8.08521E-02
51	-9.26374E-01	1.15462E-02	-9.11253E-01	-7.37415E-02
52	-8.99757E-01	1.61278E-02	-8.85873E-01	-6.68698E-02
53	-8.73160E-01	2.04113E-02	-8.60391E-01	-6.02471E-02
54	-8.46632E-01	2.43933E-02	-8.34907E-01	-5.38755E-02
55	-8.20118E-01	2.80906E-02	-8.09419E-01	-4.77772E-02
56	-7.93566E-01	3.14128E-02	-7.83973E-01	-4.20638E-02
57	-7.67038E-01	3.42803E-02	-7.58492E-01	-3.67322E-02
58	-7.40537E-01	3.68007E-02	-7.32950E-01	-3.17041E-02
59	-7.14087E-01	3.89992E-02	-7.07393E-01	-2.69801E-02
60	-6.87696E-01	4.08705E-02	-6.81820E-01	-2.25392E-02
61	-6.61258E-01	4.25728E-02	-6.56308E-01	-1.82444E-02
62	-6.34848E-01	4.40664E-02	-6.30678E-01	-1.41858E-02
63	-6.08469E-01	4.52614E-02	-6.05027E-01	-1.04211E-02
64	-5.82121E-01	4.61599E-02	-5.79356E-01	-6.95051E-03
65	-5.55877E-01	4.67839E-02	-5.53686E-01	-3.74471E-03
66	-5.27164E-01	4.70572E-02	-5.25644E-01	-7.30600E-04

POINT NO	XS	YS	XP	YP
67	-4.98435E-01	4.64654E-02	-4.97528E-01	1.48657E-03
68	-4.69337E-01	4.55244E-02	-4.69384E-01	3.33646E-03
69	-4.41220E-01	4.41961E-02	-4.41211E-01	4.78552E-03
70	-4.12630E-01	4.33904E-02	-4.13010E-01	6.72550E-03
71	-3.84068E-01	4.21373E-02	-3.84779E-01	8.19715E-03
72	-3.55533E-01	3.97592E-02	-3.56518E-01	8.51847E-03
73	-3.27028E-01	3.70302E-02	-3.28253E-01	8.45832E-03
74	-2.98554E-01	3.40284E-02	-2.99924E-01	8.08940E-03
75	-2.70772E-01	3.07483E-02	-2.71556E-01	7.40076E-03
76	-2.415[illegible]7E-01	2.78909E-02	-2.43151E-01	7.12707E-03
77	-2.13157E-01	2.37731E-02	-2.14711E-01	5.56408E-03
78	-1.84720E-01	1.94026E-02	-1.86233E-01	3.69076E-03
79	-1.56293E-01	1.46986E-02	-1.57714E-01	1.45251E-03
80	-1.27873E-01	9.66418E-03	-1.29153E-01	-1.15047E-03
81	-9.94572E-02	4.28866E-03	-1.00548E-01	-4.12825E-03

POINT NO	XSEMI	YSEMI
1	-2.29127E+00	-7.66033E-01
2	-2.29160E+00	-7.66303E-01
3	-2.29197E+00	-7.66522E-01
4	-2.29235E+00	-7.66687E-01
5	-2.29276E+00	-7.66796E-01
6	-2.29319E+00	-7.66848E-01
7	-2.29363E+00	-7.66844E-01
8	-2.29418E+00	-7.66782E-01
9	-2.29453E+00	-7.66664E-01
10	-2.29497E+00	-7.66490E-01
11	-2.29541E+00	-7.66263E-01
12	-2.29584E+00	-7.65985E-01
13	-2.29625E+00	-7.65659E-01
14	-2.29664E+00	-7.65290E-01
15	-2.29701E+00	-7.64879E-01
16	-2.29734E+00	-7.64434E-01
17	-2.29765E+00	-7.63957E-01
18	-2.29791E+00	-7.63455E-01
19	-2.29814E+00	-7.62932E-01
20	-2.29832E+00	-7.62396E-01
21	-2.29846E+00	-7.61851E-01
22	-2.29856E+00	-7.61303E-01
23	-2.29861E+00	-7.60759E-01
24	-2.29861E+00	-7.60224E-01
25	-2.29857E+00	-7.59705E-01
26	-2.29847E+00	-7.59207E-01
27	-2.29834E+00	-7.58735E-01
28	-2.29816E+00	-7.58295E-01
29	-2.29793E+00	-7.57891E-01
30	-2.29767E+00	-7.57528E-01
31	-2.29737E+00	-7.57210E-01

SECTION NUMBER 3 'Z' = 5.5000
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SECTION PROPERTIES

SECTION AREA		=	1.6857E-01
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	-1.1889E+00
	YBAR	=	-1.6658E-01
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	4.6360E-03
	IY	=	4.1960E-02
	IXY	=	1.3408E-02
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	4.9976E-04 (AT 17.92 DEGREES TO 'X' AXIS)
	IPY	=	4.6296E-02 (AT 17.92 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	4.4294E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.19674E+00	-6.76153E-01	-2.18981E+00	-6.84747E-01
2	-2.17219E+00	-6.53486E-01	-2.16348E+00	-6.65767E-01
3	-2.14827E+00	-6.31229E-01	-2.13716E+00	-6.47202E-01
4	-2.12425E+00	-6.09322E-01	-2.11084E+00	-6.29016E-01
5	-2.10314E+00	-5.87764E-01	-2.08453E+00	-6.11146E-01
6	-2.07593E+00	-5.66485E-01	-2.05821E+00	-5.93557E-01
7	-2.05161E+00	-5.45531E-01	-2.03188E+00	-5.76316E-01
8	-2.02718E+00	-5.24927E-01	-2.00553E+00	-5.59418E-01
9	-2.00262E+00	-5.04664E-01	-1.97917E+00	-5.42783E-01
10	-1.97794E+00	-4.84678E-01	-1.95278E+00	-5.26426E-01
11	-1.95313E+00	-4.65012E-01	-1.92637E+00	-5.10390E-01
12	-1.92817E+00	-4.45686E-01	-1.89991E+00	-4.94618E-01
13	-1.90307E+00	-4.26660E-01	-1.87342E+00	-4.79085E-01
14	-1.87782E+00	-4.07919E-01	-1.84687E+00	-4.63824E-01
15	-1.85241E+00	-3.89494E-01	-1.82026E+00	-4.48795E-01
16	-1.82682E+00	-3.71366E-01	-1.79357E+00	-4.33995E-01
17	-1.80176E+00	-3.53511E-01	-1.76680E+00	-4.19420E-01
18	-1.77826E+00	-3.33078E-01	-1.74321E+00	-4.06791E-01
19	-1.75530E+00	-3.22868E-01	-1.71955E+00	-3.94337E-01
20	-1.73218E+00	-3.07894E-01	-1.69581E+00	-3.82034E-01
21	-1.70888E+00	-2.93158E-01	-1.67199E+00	-3.69900E-01
22	-1.68541E+00	-2.78652E-01	-1.64810E+00	-3.57945E-01
23	-1.66176E+00	-2.64403E-01	-1.62412E+00	-3.46180E-01
24	-1.63793E+00	-2.50423E-01	-1.60304E+00	-3.34599E-01
25	-1.61391E+00	-2.36718E-01	-1.57588E+00	-3.23208E-01
26	-1.58970E+00	-2.23300E-01	-1.55162E+00	-3.12013E-01
27	-1.56530E+00	-2.10180E-01	-1.52728E+00	-3.01013E-01
28	-1.54069E+00	-1.97369E-01	-1.50284E+00	-2.90175E-01
29	-1.51590E+00	-1.84855E-01	-1.47829E+00	-2.79534E-01
30	-1.49090E+00	-1.72638E-01	-1.45366E+00	-2.69102E-01
31	-1.46578E+00	-1.60757E-01	-1.42892E+00	-2.58886E-01
32	-1.44029E+00	-1.49228E-01	-1.40409E+00	-2.48892E-01
33	-1.41467E+00	-1.38067E-01	-1.37914E+00	-2.39131E-01
34	-1.38787E+00	-1.26888E-01	-1.35312E+00	-2.29207E-01
35	-1.36188E+00	-1.16114E-01	-1.32697E+00	-2.19483E-01

POINT NO	XS	YS	XP	YP
35	-1.33369E+00	-1.05711E-01	-1.30067E+00	-2.39987E-01
37	-1.30631E+00	-9.57139E-02	-1.27422E+00	-2.30708E-01
38	-1.27872E+00	-8.61292E-02	-1.24757E+00	-1.91624E-01
39	-1.25391E+00	-7.64359E-02	-1.22073E+00	-1.82695E-01
40	-1.22297E+00	-6.80876E-02	-1.19366E+00	-1.73916E-01
41	-1.19458E+00	-5.95694E-02	-1.16635E+00	-1.65310E-01
42	-1.16603E+00	-5.13984E-02	-1.13878E+00	-1.56870E-01
43	-1.13726E+00	-4.35629E-02	-1.11091E+00	-1.48561E-01
44	-1.10837E+00	-3.61126E-02	-1.08273E+00	-1.40359E-01
45	-1.07863E+00	-2.87213E-02	-1.05422E+00	-1.32283E-01
46	-1.04886E+00	-2.17084E-02	-1.02537E+00	-1.24336E-01
47	-1.01875E+00	-1.43678E-02	-9.96181E-01	-1.16498E-01
48	-9.88319E-01	-8.47934E-03	-9.66681E-01	-1.08732E-01
49	-9.57585E-01	-2.20710E-03	-9.36885E-01	-1.01038E-01
50	-9.28451E-01	3.46127E-03	-9.08750E-01	-9.39179E-02
51	-8.99339E-01	8.84566E-03	-8.80681E-01	-8.69584E-02
52	-8.70279E-01	1.39400E-02	-8.52684E-01	-8.01682E-02
53	-8.41266E-01	1.87341E-02	-8.24791E-01	-7.35538E-02
54	-8.12340E-01	2.32166E-02	-7.97010E-01	-6.71378E-02
55	-7.83519E-01	2.73847E-02	-7.69356E-01	-6.09144E-02
56	-7.54829E-01	3.12265E-02	-7.41832E-01	-5.48965E-02
57	-7.26287E-01	3.47427E-02	-7.14455E-01	-4.90952E-02
58	-6.97913E-01	3.73107E-02	-6.87240E-01	-4.35328E-02
59	-6.69723E-01	4.07193E-02	-6.60192E-01	-3.82220E-02
60	-6.41708E-01	4.31637E-02	-6.33285E-01	-3.31777E-02
61	-6.13839E-01	4.52478E-02	-6.06476E-01	-2.84096E-02
62	-5.86382E-01	4.69760E-02	-5.79730E-01	-2.39287E-02
63	-5.58404E-01	4.83488E-02	-5.53015E-01	-1.97475E-02
64	-5.30773E-01	4.93672E-02	-5.26298E-01	-1.58766E-02
65	-5.03177E-01	5.01336E-02	-4.99567E-01	-1.23192E-02
66	-4.73056E-01	5.03547E-02	-4.70335E-01	-8.80876E-03
67	-4.42981E-01	5.02033E-02	-4.41066E-01	-5.73426E-03
68	-4.12950E-01	4.95057E-02	-4.11764E-01	-3.07800E-03
69	-3.82961E-01	4.85646E-02	-3.82429E-01	-8.42575E-04
70	-3.53014E-01	4.72523E-02	-3.53058E-01	1.13593E-03
71	-3.23178E-01	4.55261E-02	-3.23649E-01	2.71020E-03
72	-2.93240E-01	4.32769E-02	-2.94202E-01	3.76645E-03
73	-2.63410E-01	4.06054E-02	-2.64718E-01	4.40019E-03
74	-2.33616E-01	3.75301E-02	-2.35184E-01	4.62459E-03
75	-2.03848E-01	3.40585E-02	-2.05606E-01	4.44066E-03
76	-1.74111E-01	3.03913E-02	-1.75983E-01	4.05153E-03
77	-1.44402E-01	2.61387E-02	-1.46313E-01	3.06418E-03
78	-1.14720E-01	2.15035E-02	-1.16596E-01	1.66883E-03
79	-8.50623E-02	1.64723E-02	-8.68292E-02	-1.45501E-04
80	-5.54252E-02	1.13490E-02	-5.70112E-02	-2.37851E-03
81	-2.58066E-02	5.22790E-03	-2.71408E-02	-5.03823E-03

POINT NO	XSEMI	YSEMI
1	-2.18931E+00	-6.84747E-01
2	-2.19020E+00	-6.85034E-01
3	-2.19061E+00	-6.85270E-01
4	-2.19136E+00	-6.85454E-01
5	-2.19152E+00	-6.85583E-01
6	-2.19230E+00	-6.85656E-01
7	-2.19249E+00	-6.85671E-01
8	-2.19298E+00	-6.85630E-01

POINT NO	XSEMI	YSEMI
9	-2.19347E+00	-6.85532E-01
10	-2.19336E+00	-6.85377E-01
11	-2.19443E+00	-6.85169E-01
12	-2.19489E+00	-6.84910E-01
13	-2.19533E+00	-6.84601E-01
14	-2.19574E+00	-6.84247E-01
15	-2.19612E+00	-6.83851E-01
16	-2.19647E+00	-6.83418E-01
17	-2.19677E+00	-6.82953E-01
18	-2.19704E+00	-6.82460E-01
19	-2.19726E+00	-6.81945E-01
20	-2.19743E+00	-6.81414E-01
21	-2.19755E+00	-6.80872E-01
22	-2.19762E+00	-6.80325E-01
23	-2.19764E+00	-6.79780E-01
24	-2.19761E+00	-6.79243E-01
25	-2.19753E+00	-6.78718E-01
26	-2.19739E+00	-6.78212E-01
27	-2.19721E+00	-6.77731E-01
28	-2.19698E+00	-6.77280E-01
29	-2.19671E+00	-6.76864E-01
30	-2.19639E+00	-6.75486E-01
31	-2.196.4E+00	-6.76153E-01

SECTION NUMBER 4 'Z' = 5.8750
****

SECTION PROPERTIES

SECTION AREA		=	1.6494E-01
LOCATION OF CENTROID	XBAR	=	-1.1193E+00
RELATIVE TO STACK AXIS	YBAR	=	-1.4565E-01
SECOND MOMENTS OF AREA	IX	=	3.9954E-03
ABOUT CENTROID	IY	=	4.1170E-02
	IXY	=	1.2000E-02
PRINCIPAL SECOND MOMENTS	IPX	=	4.5826E-04 (AT 16.42 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	=	4.4707E-02 (AT 16.42 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	4.2006E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.135 1E+00	-6.25106E-01	-2.13176E+00	-6.33596E-01
2	-2.11323E+00	-6.03098E-01	-2.10447E+00	-6.15215E-01
3	-2.08835E+00	-5.81496E-01	-2.07721E+00	-5.97238E-01
4	-2.06345E+00	-5.60247E-01	-2.05000E+00	-5.79630E-01
5	-2.03849E+00	-5.39353E-01	-2.02282E+00	-5.62362E-01
6	-2.01347E+00	-5.18763E-01	-1.99569E+00	-5.45390E-01
7	-1.98839E+00	-4.98533E-01	-1.96859E+00	-5.28747E-01
8	-1.96325E+00	-4.78640E-01	-1.94155E+00	-5.12457E-01
9	-1.93815E+00	-4.59113E-01	-1.91454E+00	-4.96498E-01
10	-1.91278E+00	-4.39938E-01	-1.88758E+00	-4.80822E-01

POINT NO	XS	YS	XP	YP
11	-1.88745E+00	-4.21084E-01	-1.86067E+00	-4.65453E-01
12	-1.86276E+00	-4.02580E-01	-1.83380E+00	-4.50415E-01
13	-1.83651E+00	-3.84448E-01	-1.80699E+00	-4.35639E-01
14	-1.81119E+00	-3.66686E-01	-1.78023E+00	-4.21245E-01
15	-1.78552E+00	-3.49254E-01	-1.75352E+00	-4.07072E-01
16	-1.75959E+00	-3.32154E-01	-1.72686E+00	-3.93211E-01
17	-1.73420E+00	-3.15428E-01	-1.70026E+00	-3.79639E-01
18	-1.71248E+00	-3.01611E-01	-1.67783E+00	-3.68388E-01
19	-1.69367E+00	-2.88078E-01	-1.65540E+00	-3.57306E-01
20	-1.66876E+00	-2.74632E-01	-1.63294E+00	-3.46393E-01
21	-1.64674E+00	-2.61485E-01	-1.61047E+00	-3.35658E-01
22	-1.62462E+00	-2.48575E-01	-1.58798E+00	-3.25103E-01
23	-1.60238E+00	-2.35910E-01	-1.56546E+00	-3.14733E-01
24	-1.58004E+00	-2.23499E-01	-1.54291E+00	-3.04549E-01
25	-1.55757E+00	-2.11347E-01	-1.52034E+00	-2.94555E-01
26	-1.53498E+00	-1.99462E-01	-1.49773E+00	-2.84757E-01
27	-1.51227E+00	-1.87851E-01	-1.47509E+00	-2.75155E-01
28	-1.48943E+00	-1.76522E-01	-1.45241E+00	-2.65750E-01
29	-1.46646E+00	-1.65478E-01	-1.42969E+00	-2.56547E-01
30	-1.44336E+00	-1.54729E-01	-1.40692E+00	-2.47550E-01
31	-1.42012E+00	-1.44281E-01	-1.38410E+00	-2.38761E-01
32	-1.39574E+00	-1.34142E-01	-1.36124E+00	-2.30183E-01
33	-1.37322E+00	-1.24319E-01	-1.33832E+00	-2.21827E-01
34	-1.34845E+00	-1.14231E-01	-1.31388E+00	-2.13154E-01
35	-1.32279E+00	-1.04521E-01	-1.28939E+00	-2.04714E-01
36	-1.29742E+00	-9.51687E-02	-1.26484E+00	-1.96507E-01
37	-1.27136E+00	-8.61874E-02	-1.24023E+00	-1.88522E-01
38	-1.24640E+00	-7.75722E-02	-1.21554E+00	-1.80746E-01
39	-1.22075E+00	-6.93161E-02	-1.19079E+00	-1.73165E-01
40	-1.19511E+00	-6.14098E-02	-1.16595E+00	-1.65770E-01
41	-1.16917E+00	-5.38445E-02	-1.14103E+00	-1.58537E-01
42	-1.14324E+00	-4.66028E-02	-1.11603E+00	-1.51441E-01
43	-1.11721E+00	-3.96556E-02	-1.09093E+00	-1.44487E-01
44	-1.09110E+00	-3.30043E-02	-1.06574E+00	-1.37671E-01
45	-1.06490E+00	-2.66451E-02	-1.04044E+00	-1.30985E-01
46	-1.03860E+00	-2.05632E-02	-1.01504E+00	-1.24418E-01
47	-1.01221E+00	-1.47466E-02	-9.89525E-01	-1.17962E-01
48	-9.85733E-01	-9.18840E-03	-9.63898E-01	-1.11590E-01
49	-9.59164E-01	-3.83036E-03	-9.38148E-01	-1.05286E-01
50	-9.29361E-01	1.93587E-03	-9.09313E-01	-9.83547E-02
51	-8.99567E-01	7.32844E-03	-8.80520E-01	-9.15923E-02
52	-8.69755E-01	1.24319E-02	-8.51765E-01	-8.49797E-02
53	-8.40317E-01	1.72636E-02	-8.23046E-01	-7.85090E-02
54	-8.10265E-01	2.17850E-02	-7.94360E-01	-7.22296E-02
55	-7.80529E-01	2.59758E-02	-7.65701E-01	-6.61516E-02
56	-7.50812E-01	2.98533E-02	-7.37067E-01	-6.02479E-02
57	-7.21115E-01	3.34354E-02	-7.08455E-01	-5.45434E-02
58	-6.91441E-01	3.66775E-02	-6.79861E-01	-4.90702E-02
59	-6.61791E-01	3.95703E-02	-6.51283E-01	-4.38356E-02
60	-6.32166E-01	4.21549E-02	-6.22717E-01	-3.88045E-02
61	-6.02568E-01	4.44133E-02	-5.94161E-01	-3.40170E-02
62	-5.72939E-01	4.63140E-02	-5.65611E-01	-2.94997E-02
63	-5.43460E-01	4.78552E-02	-5.37063E-01	-2.52512E-02
64	-5.13953E-01	4.93653E-02	-5.08513E-01	-2.12519E-02
65	-4.84491E-01	4.99505E-02	-4.79960E-01	-1.75134E-02
66	-4.52340E-01	5.04735E-02	-4.48774E-01	-1.37957E-02
67	-4.20242E-01	5.05480E-02	-4.17572E-01	-1.04437E-02

POINT NO	XS	YS	XP	YP
68	-3.88189E-01	5.02588E-02	-3.86350E-01	-7.39433E-03
69	-3.56180E-01	4.94884E-02	-3.55103E-01	-4.76193E-03
70	-3.24218E-01	4.82686E-02	-3.23831E-01	-2.51990E-03
71	-2.92336E-01	4.66504E-02	-2.92531E-01	-6.28352E-04
72	-2.60445E-01	4.45417E-02	-2.61201E-01	8.17738E-04
73	-2.28639E-01	4.23100E-02	-2.29839E-01	1.87644E-03
74	-1.96887E-01	3.91243E-02	-1.98445E-01	2.51723E-03
75	-1.65193E-01	3.55557E-02	-1.67016E-01	2.69654E-03
76	-1.33556E-01	3.16873E-02	-1.35552E-01	2.49481E-03
77	-1.01978E-01	2.73421E-02	-1.04051E-01	1.83291E-03
78	-7.04567E-02	2.25170E-02	-7.25110E-02	6.92339E-04
79	-3.89916E-02	1.73196E-02	-4.09329E-02	-8.16765E-04
80	-7.59250E-03	1.16451E-02	-9.31621E-03	-2.80716E-03
81	2.37722E-02	5.48900E-03	2.23399E-02	-5.29192E-03

POINT NO	XSEMI	YSEMI
1	-2.13176E+00	-6.33596E-01
2	-2.13218E+00	-6.33889E-01
3	-2.13263E+00	-6.34133E-01
4	-2.13310E+00	-6.34324E-01
5	-2.13360E+00	-6.34460E-01
6	-2.13411E+00	-6.34541E-01
7	-2.13463E+00	-6.34564E-01
8	-2.13515E+00	-6.34531E-01
9	-2.13566E+00	-6.34441E-01
10	-2.13617E+00	-6.34295E-01
11	-2.13667E+00	-6.34095E-01
12	-2.13714E+00	-6.33843E-01
13	-2.13759E+00	-6.33541E-01
14	-2.13812E+00	-6.33194E-01
15	-2.13840E+00	-6.32805E-01
16	-2.13875E+00	-6.32377E-01
17	-2.13906E+00	-6.31917E-01
18	-2.13931E+00	-6.31428E-01
19	-2.13953E+00	-6.30917E-01
20	-2.13969E+00	-6.30389E-01
21	-2.13979E+00	-6.29849E-01
22	-2.13985E+00	-6.29304E-01
23	-2.13985E+00	-6.28759E-01
24	-2.13979E+00	-6.28221E-01
25	-2.13968E+00	-6.27695E-01
26	-2.13952E+00	-6.27187E-01
27	-2.13931E+00	-6.26703E-01
28	-2.13905E+00	-6.26249E-01
29	-2.13874E+00	-6.25828E-01
30	-2.13840E+00	-6.25445E-01
31	-2.13801E+00	-6.25106E-01

SECTION NUMBER 5 'Z' = 6.2500

SECTION PROPERTIES

SECTION AREA		=	1.6687E-01
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	-1.0801E+00
	YBAR	=	-1.3255E-01
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	3.6772E-03
	IY	=	4.2618E-02
	IXY	=	1.1659E-02
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	4.5312E-04 (AT 15.46 DEGREES TO 'X' AXIS)
	IPY	=	4.5842E-02 (AT 105.46 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	4.5009E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.11474E+00	-5.95729E-01	-2.10777E+00	-6.05227E-01
2	-2.08852E+00	-5.74890E-01	-2.07972E+00	-5.87076E-01
3	-2.06298E+00	-5.53471E-01	-2.05171E+00	-5.69343E-01
4	-2.03736E+00	-5.32417E-01	-2.02375E+00	-5.51989E-01
5	-2.01172E+00	-5.11731E-01	-1.99585E+00	-5.34994E-01
6	-1.98604E+00	-4.91392E-01	-1.96801E+00	-5.18314E-01
7	-1.96130E+00	-4.71378E-01	-1.94022E+00	-5.01960E-01
8	-1.93452E+00	-4.51723E-01	-1.91249E+00	-4.85961E-01
9	-1.90868E+00	-4.32437E-01	-1.88481E+00	-4.70308E-01
10	-1.88290E+00	-4.13520E-01	-1.85720E+00	-4.54959E-01
11	-1.85647E+00	-3.94940E-01	-1.82965E+00	-4.39901E-01
12	-1.83459E+00	-3.76696E-01	-1.80216E+00	-4.25172E-01
13	-1.80456E+00	-3.58823E-01	-1.77473E+00	-4.10768E-01
14	-1.77877E+00	-3.41323E-01	-1.74737E+00	-3.96668E-01
15	-1.75264E+00	-3.24188E-01	-1.72007E+00	-3.82833E-01
16	-1.72646E+00	-3.07388E-01	-1.69283E+00	-3.69298E-01
17	-1.70023E+00	-2.90941E-01	-1.66567E+00	-3.56070E-01
18	-1.67917E+00	-2.77975E-01	-1.64382E+00	-3.45611E-01
19	-1.65794E+00	-2.65230E-01	-1.62200E+00	-3.35339E-01
20	-1.63656E+00	-2.52713E-01	-1.60020E+00	-3.25231E-01
21	-1.61521E+00	-2.41432E-01	-1.57843E+00	-3.15317E-01
22	-1.59381E+00	-2.28392E-01	-1.55669E+00	-3.05591E-01
23	-1.57234E+00	-2.16600E-01	-1.53497E+00	-2.96056E-01
24	-1.55081E+00	-2.05062E-01	-1.51327E+00	-2.86714E-01
25	-1.52921E+00	-1.93782E-01	-1.49160E+00	-2.77568E-01
26	-1.50755E+00	-1.82766E-01	-1.46994E+00	-2.68622E-01
27	-1.48582E+00	-1.72020E-01	-1.44831E+00	-2.59878E-01
28	-1.46412E+00	-1.61551E-01	-1.42669E+00	-2.51338E-01
29	-1.44215E+00	-1.51363E-01	-1.40509E+00	-2.43004E-01
30	-1.42021E+00	-1.41462E-01	-1.38350E+00	-2.34879E-01
31	-1.39819E+00	-1.31852E-01	-1.36193E+00	-2.26964E-01
32	-1.37611E+00	-1.22540E-01	-1.34037E+00	-2.19258E-01
33	-1.35395E+00	-1.13530E-01	-1.31882E+00	-2.11769E-01
34	-1.32956E+00	-1.03992E-01	-1.29517E+00	-2.03799E-01
35	-1.30512E+00	-9.46395E-02	-1.27151E+00	-1.96079E-01

POINT NO	XS	YS	XP	YP
36	-1.28364E+00	-8.63676E-02	-1.24784E+00	-1.88594E-01
37	-1.25512E+00	-7.75451E-02	-1.22416E+00	-1.81318E-01
38	-1.23156E+00	-6.95741E-02	-1.20046E+00	-1.74241E-01
39	-1.20698E+00	-6.16311E-02	-1.17675E+00	-1.67361E-01
40	-1.18233E+00	-5.44194E-02	-1.15301E+00	-1.60668E-01
41	-1.15766E+00	-4.73303E-02	-1.12924E+00	-1.54149E-01
42	-1.13296E+00	-4.05566E-02	-1.10544E+00	-1.47791E-01
43	-1.10823E+00	-3.40875E-02	-1.08161E+00	-1.41582E-01
44	-1.08347E+00	-2.79128E-02	-1.05775E+00	-1.35511E-01
45	-1.05868E+00	-2.21204E-02	-1.03384E+00	-1.29568E-01
46	-1.03387E+00	-1.63970E-02	-1.00990E+00	-1.23743E-01
47	-1.00913E+00	-1.10289E-02	-9.85908E-01	-1.18025E-01
48	-9.84174E-01	-5.90049E-03	-9.61869E-01	-1.12397E-01
49	-9.59259E-01	-9.91713E-04	-9.37781E-01	-1.06845E-01
50	-9.28314E-01	4.83312E-03	-9.07816E-01	-1.00073E-01
51	-8.97351E-01	1.02976E-02	-8.77890E-01	-9.34753E-02
52	-8.66401E-01	1.54227E-02	-8.47998E-01	-8.70136E-02
53	-8.35467E-01	2.02405E-02	-8.18138E-01	-8.07167E-02
54	-8.04550E-01	2.46972E-02	-7.88305E-01	-7.46101E-02
55	-7.73653E-01	2.88408E-02	-7.58499E-01	-6.86490E-02
56	-7.42776E-01	3.26643E-02	-7.28715E-01	-6.28797E-02
57	-7.11922E-01	3.61344E-02	-6.98952E-01	-5.73076E-02
58	-6.81093E-01	3.92890E-02	-6.69206E-01	-5.19121E-02
59	-6.50289E-01	4.21168E-02	-6.39476E-01	-4.67256E-02
60	-6.19513E-01	4.45986E-02	-6.09757E-01	-4.17552E-02
61	-5.88766E-01	4.67498E-02	-5.80048E-01	-3.69894E-02
62	-5.58049E-01	4.85793E-02	-5.50345E-01	-3.24473E-02
63	-5.27365E-01	5.00513E-02	-5.20646E-01	-2.81550E-02
64	-4.96716E-01	5.11899E-02	-4.90948E-01	-2.40846E-02
65	-4.66103E-01	5.20836E-02	-4.61249E-01	-2.02563E-02
66	-4.32817E-01	5.24417E-02	-4.28918E-01	-1.64320E-02
67	-3.99570E-01	5.25347E-02	-3.96580E-01	-1.28587E-02
68	-3.66355E-01	5.21311E-02	-3.64232E-01	-9.69445E-03
69	-3.33205E-01	5.13526E-02	-3.31869E-01	-6.81454E-03
70	-3.00093E-01	5.00784E-02	-2.99487E-01	-4.35937E-03
71	-2.67031E-01	4.84029E-02	-2.67082E-01	-2.23697E-03
72	-2.34022E-01	4.62249E-02	-2.34650E-01	-5.52225E-04
73	-2.01067E-01	4.36235E-02	-2.02188E-01	7.58839E-04
74	-1.68168E-01	4.05242E-02	-1.69692E-01	1.62273E-03
75	-1.35328E-01	3.69752E-02	-1.37158E-01	2.06843E-03
76	-1.02546E-01	3.29421E-02	-1.04582E-01	2.06926E-03
77	-6.98240E-02	2.84121E-02	-7.19632E-02	1.58665E-03
78	-3.71620E-02	2.34214E-02	-3.92968E-02	6.69811E-04
79	-4.56039E-03	1.79920E-02	-6.58032E-03	-7.83068E-04
80	2.79510E-02	1.10289E-02	2.61891E-02	-2.67003E-03
81	6.04627E-02	5.36493E-03	5.90137E-02	-5.16277E-03

POINT NO	XSEMI	YSEMI
1	-2.10777E+00	-6.05227E-01
2	-2.10822E+00	-6.05526E-01
3	-2.10869E+00	-6.05776E-01
4	-2.10919E+00	-6.05973E-01
5	-2.10971E+00	-6.06116E-01
6	-2.11024E+00	-6.06202E-01
7	-2.11078E+00	-6.06230E-01
8	-2.11132E+00	-6.06202E-01

POINT NO	XSEMI	YSEMI
9	-2.11155E+00	-6.06116E-01
10	-2.11233E+00	-6.05973E-01
11	-2.11259E+00	-6.05776E-01
12	-2.11337E+00	-6.05527E-01
13	-2.11343E+00	-6.05227E-01
14	-2.11426E+00	-6.04881E-01
15	-2.11465E+00	-6.04493E-01
16	-2.11510E+00	-6.04065E-01
17	-2.11531E+00	-6.03604E-01
18	-2.11557E+00	-6.03114E-01
19	-2.11577E+00	-6.02601E-01
20	-2.11592E+00	-6.02070E-01
21	-2.11612E+00	-6.01527E-01
22	-2.11616E+00	-6.00978E-01
23	-2.116[illegible]5E+00	-6.00429E-01
24	-2.11598E+00	-5.99886E-01
25	-2.11585E+00	-5.99355E-01
26	-2.11567E+00	-5.98842E-01
27	-2.11544E+00	-5.98352E-01
28	-2.11516E+00	-5.97891E-01
29	-2.11483E+00	-5.97464E-01
30	-2.11445E+00	-5.97075E-01
31	-2.11404E+00	-5.96729E-01

SECTION NUMBER 6 'Z' = 6.6250
****

SECTION PROPERTIES

SECTION AREA		=	1.7912E-01
LOCATION OF CENTROID	XBAR	=	-1.0597E+00
RELATIVE TO STACK AXIS	YBAR	=	-1.2679E-01
SECOND MOMENTS OF AREA	IX	=	2.7668E-03
ABOUT CENTROID	IY	=	4.6795E-02
	IXY	=	1.2334E-02
PRINCIPAL SECOND MOMENTS	IPX	=	4.8193E-04 (AT 14.91 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	=	5.0086E-02 (AT 14.91 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	5.2165E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.11824E+00	-5.88980E-01	-2.11168E+00	-5.97583E-01
2	-2.09213E+00	-5.66946E-01	-2.08315E+00	-5.79378E-01
3	-2.06599E+00	-5.45377E-01	-2.05447E+00	-5.61627E-01
4	-2.03932E+00	-5.24190E-01	-2.02586E+00	-5.44283E-01
5	-2.01361E+00	-5.03401E-01	-1.99732E+00	-5.27331E-01
6	-1.98734E+00	-4.82995E-01	-1.96884E+00	-5.10727E-01
7	-1.961[illegible]6E+00	-4.62931E-01	-1.94044E+00	-4.94456E-01
8	-1.93473E+00	-4.43234E-01	-1.91210E+00	-4.78551E-01
9	-1.90836E+00	-4.23920E-01	-1.88382E+00	-4.53005E-01
10	-1.88134E+00	-4.04986E-01	-1.85562E+00	-4.47739E-01

POINT NO	XS	YS	XP	YP
11	-1.85547E+00	-3.85422E-01	-1.82748E+00	-4.32890E-01
12	-1.82697E+00	-3.69198E-01	-1.79941E+00	-4.18292E-01
13	-1.83241E+00	-3.51339E-01	-1.77141E+00	-4.04023E-01
14	-1.77591E+00	-3.32838E-01	-1.74347E+00	-3.90073E-01
15	-1.74972E+00	-3.15721E-01	-1.71560E+00	-3.76412E-01
16	-1.72245E+00	-2.98965E-01	-1.68779E+00	-3.63016E-01
17	-1.69574E+00	-2.82543E-01	-1.66005E+00	-3.49927E-01
18	-1.67449E+00	-2.69777E-01	-1.63810E+00	-3.39742E-01
19	-1.6532[illegible]	-2.57244E-01	-1.61619E+00	-3.29738E-01
20	-1.63148E+00	-2.44942E-01	-1.59433E+00	-3.19918E-01
21	-1.61951E+00	-2.32878E-01	-1.57252E+00	-3.10287E-01
22	-1.594[illegible]	-2.21058E-01	-1.55075E+00	-3.00846E-01
23	-1.56756E+00	-2.09487E-01	-1.52904E+00	-2.91596E-01
24	-1.54617E+00	-1.98169E-01	-1.50737E+00	-2.82541E-01
25	-1.52464E+00	-1.87110E-01	-1.48575E+00	-2.73685E-01
26	-1.50317E+00	-1.76314E-01	-1.46418E+00	-2.65031E-01
27	-1.48145E+00	-1.65790E-01	-1.44266E+00	-2.56580E-01
28	-1.45974E+00	-1.55541E-01	-1.42118E+00	-2.48332E-01
29	-1.43794E+00	-1.45572E-01	-1.39976E+00	-2.40292E-01
30	-1.41614E+00	-1.35886E-01	-1.37838E+00	-2.32463E-01
31	-1.39455E+00	-1.26490E-01	-1.35704E+00	-2.24849E-01
32	-1.37271E+00	-1.17391E-01	-1.33575E+00	-2.17449E-01
33	-1.35094E+00	-1.08594E-01	-1.31450E+00	-2.10277E-01
34	-1.32649E+00	-9.91828E-02	-1.29393E+00	-2.02566E-01
35	-1.30213E+00	-9.01658E-02	-1.26738E+00	-1.95103E-01
36	-1.27776E+00	-8.15223E-02	-1.24384E+00	-1.87866E-01
37	-1.25337E+00	-7.32332E-02	-1.22032E+00	-1.80851E-01
38	-1.22898E+00	-6.52872E-02	-1.19681E+00	-1.74040E-01
39	-1.20458E+00	-5.76824E-02	-1.17331E+00	-1.67445E-01
40	-1.18017E+00	-5.04097E-02	-1.14981E+00	-1.61031E-01
41	-1.15576E+00	-4.34586E-02	-1.12632E+00	-1.54792E-01
42	-1.13135E+00	-3.68192E-02	-1.10282E+00	-1.48717E-01
43	-1.10694E+00	-3.04812E-02	-1.07931E+00	-1.42793E-01
44	-1.08253E+00	-2.44346E-02	-1.05580E+00	-1.37007E-01
45	-1.05812E+00	-1.86678E-02	-1.03228E+00	-1.31347E-01
46	-1.03372E+00	-1.31677E-02	-1.00875E+00	-1.25801E-01
47	-1.00913E+00	-7.92060E-03	-9.85199E-01	-1.20362E-01
48	-9.84957E-01	-2.91310E-03	-9.61635E-01	-1.15018E-01
49	-9.63577E-01	1.86908E-03	-9.38050E-01	-1.09751E-01
50	-9.28456E-01	7.86464E-03	-9.06974E-01	-1.02931E-01
51	-8.96339E-01	1.34901E-02	-8.75937E-01	-9.62091E-02
52	-8.64231E-01	1.87418E-02	-8.44933E-01	-8.97932E-02
53	-8.32134E-01	2.36543E-02	-8.13961E-01	-8.34510E-02
54	-8.00371E-01	2.81981E-02	-7.83016E-01	-7.73073E-02
55	-7.67934E-01	3.23938E-02	-7.52095E-01	-7.13123E-02
56	-7.35935E-01	3.62282E-02	-7.21194E-01	-6.55151E-02
57	-7.03917E-01	3.97184E-02	-6.90311E-01	-5.98858E-02
58	-6.71911E-01	4.29538E-02	-6.59442E-01	-5.44670E-02
59	-6.39923E-01	4.55359E-02	-6.28594E-01	-4.92338E-02
60	-6.07973E-01	4.83909E-02	-5.97733E-01	-4.41939E-02
61	-5.76947E-01	5.01700E-02	-5.66989E-01	-3.93898E-02
62	-5.44134E-01	5.19348E-02	-5.36146E-01	-3.47663E-02
63	-5.12234E-01	5.33217E-02	-5.05294E-01	-3.04087E-02
64	-4.80468E-01	5.43813E-02	-4.74359E-01	-2.62369E-02
65	-4.48678E-01	5.51093E-02	-4.43508E-01	-2.22984E-02
66	-4.14217E-01	5.54720E-02	-4.10327E-01	-1.83230E-02
67	-3.79798E-01	5.54585E-02	-3.76542E-01	-1.46264E-02

POINT NO	XS	YS	XP	YP
68	-3.45336E-01	5.49855E-02	-3.43048E-01	-1.12672E-02
69	-3.11045E-01	5.41939E-02	-3.09539E-01	-8.23851E-03
70	-2.76738E-01	5.27437E-02	-2.76012E-01	-5.56919E-03
71	-2.42493E-01	5.09298E-02	-2.42462E-01	-3.28379E-03
72	-2.08274E-01	4.86673E-02	-2.08884E-01	-1.37798E-03
73	-1.74122E-01	4.58831E-02	-1.75273E-01	9.02696E-05
74	-1.40330E-01	4.26548E-02	-1.41625E-01	1.16034E-03
75	-1.05338E-01	3.85762E-02	-1.07935E-01	1.73864E-03
76	-7.20312E-02	3.46494E-02	-7.42009E-02	1.90024E-03
77	-3.81334E-02	2.98330E-02	-4.04174E-02	1.51539E-03
78	-4.29817E-03	2.45712E-02	-6.58100E-03	6.97706E-04
79	2.94638E-02	1.86824E-02	2.73115E-02	-7.22833E-04
80	6.31539E-02	1.23591E-02	6.12634E-02	-2.59123E-03
81	9.67714E-02	5.34380E-03	9.52775E-02	-5.13120E-03

POINT NO	XSEMI	YSEMI
1	-2.11188E+00	-5.97583E-01
2	-2.11235E+00	-5.97892E-01
3	-2.11244E+00	-5.98149E-01
4	-2.11336E+00	-5.98354E-01
5	-2.11390E+00	-5.98553E-01
6	-2.11445E+00	-5.98594E-01
7	-2.11510E+00	-5.98628E-01
8	-2.11556E+00	-5.98612E-01
9	-2.11611E+00	-5.98519E-01
10	-2.11665E+00	-5.98378E-01
11	-2.11718E+00	-5.98181E-01
12	-2.11768E+00	-5.97931E-01
13	-2.11815E+00	-5.97630E-01
14	-2.11859E+00	-5.97281E-01
15	-2.11838E+00	-5.96888E-01
16	-2.11914E+00	-5.96456E-01
17	-2.11955E+00	-5.95989E-01
18	-2.11991E+00	-5.95492E-01
19	-2.12011E+00	-5.94971E-01
20	-2.12128E+00	-5.94432E-01
21	-2.12136E+00	-5.93879E-01
22	-2.12139E+00	-5.93321E-01
23	-2.12037E+00	-5.92762E-01
24	-2.12029E+00	-5.92209E-01
25	-2.12115E+00	-5.91667E-01
26	-2.11935E+00	-5.91143E-01
27	-2.11971E+00	-5.90643E-01
28	-2.11941E+00	-5.90172E-01
29	-2.11316E+00	-5.89734E-01
30	-2.11867E+00	-5.89336E-01
31	-2.11824E+00	-5.88980E-01

SECTION NUMBER 7 'Z' = 7.0000
****

SECTION PROPERTIES

SECTION AREA		=	1.3538E-01	
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	-1.1527E+00	
	YBAR	=	-1.2660E-01	
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	4.2113E-03	
	IY	=	5.3819E-02	
	IXY	=	1.3985E-02	
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	5.4050E-04	(AT 14.71 DEGREES TO 'X' AXIS)
	IPY	=	5.7490E-02	(AT 14.71 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	6.4371E-04	

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.14425E+00	-5.97301E-01	-2.13772E+00	-6.06569E-01
2	-2.11763E+00	-5.75208E-01	-2.10832E+00	-5.88032E-01
3	-2.09097E+00	-5.53127E-01	-2.07900E+00	-5.69947E-01
4	-2.06428E+00	-5.31488E-01	-2.04975E+00	-5.52346E-01
5	-2.03755E+00	-5.11263E-01	-2.02058E+00	-5.35186E-01
6	-2.01079E+00	-4.89505E-01	-1.99149E+00	-5.18426E-01
7	-1.98398E+00	-4.69117E-01	-1.96248E+00	-5.02029E-01
8	-1.95714E+00	-4.49112E-01	-1.93354E+00	-4.86014E-01
9	-1.93026E+00	-4.29512E-01	-1.90468E+00	-4.70385E-01
10	-1.90333E+00	-4.10316E-01	-1.87589E+00	-4.55127E-01
11	-1.87637E+00	-3.91517E-01	-1.84717E+00	-4.40210E-01
12	-1.84936E+00	-3.73098E-01	-1.81853E+00	-4.25595E-01
13	-1.82231E+00	-3.55332E-01	-1.78996E+00	-4.11303E-01
14	-1.79521E+00	-3.37332E-01	-1.76146E+00	-3.97336E-01
15	-1.76816E+00	-3.20014E-01	-1.73302E+00	-3.83681E-01
16	-1.74190E+00	-3.03079E-01	-1.70465E+00	-3.70314E-01
17	-1.71359E+00	-2.86488E-01	-1.67634E+00	-3.57218E-01
18	-1.69174E+00	-2.73392E-01	-1.65361E+00	-3.46877E-01
19	-1.66976E+00	-2.61529E-01	-1.63095E+00	-3.36720E-01
20	-1.64776E+00	-2.47917E-01	-1.60834E+00	-3.26748E-01
21	-1.62573E+00	-2.35527E-01	-1.58580E+00	-3.16967E-01
22	-1.60366E+00	-2.23395E-01	-1.56332E+00	-3.07382E-01
23	-1.58157E+00	-2.11519E-01	-1.54091E+00	-2.97996E-01
24	-1.55944E+00	-1.99905E-01	-1.51856E+00	-2.88813E-01
25	-1.53727E+00	-1.89560E-01	-1.49627E+00	-2.79833E-01
26	-1.51507E+00	-1.77489E-01	-1.47435E+00	-2.71061E-01
27	-1.49284E+00	-1.66696E-01	-1.45189E+00	-2.62439E-01
28	-1.47057E+00	-1.55189E-01	-1.42979E+00	-2.54149E-01
29	-1.44827E+00	-1.45971E-01	-1.40775E+00	-2.46015E-01
30	-1.42593E+00	-1.36049E-01	-1.38578E+00	-2.38633E-01
31	-1.40356E+00	-1.26429E-01	-1.36387E+00	-2.30404E-01
32	-1.38115E+00	-1.17115E-01	-1.34202E+00	-2.22929E-01
33	-1.35872E+00	-1.08114E-01	-1.32024E+00	-2.13678E-01
34	-1.33378E+00	-9.84916E-02	-1.29610E+00	-2.07892E-01
35	-1.30883E+00	-8.92656E-02	-1.27200E+00	-2.00365E-01

POINT NO	XS	YS	XP	YP
36	-1.22339E+00	-8.54266E-02	-1.24794E+00	-1.93082E-01
37	-1.25594E+00	-7.19628E-02	-1.22389E+00	-1.86029E-01
38	-1.23403E+00	-6.34628E-02	-1.19987E+00	-1.79193E-01
39	-1.20916E+00	-5.61154E-02	-1.17587E+00	-1.72561E-01
40	-1.18414E+00	-4.87095E-02	-1.15189E+00	-1.66119E-01
41	-1.15922E+00	-4.16330E-02	-1.12792E+00	-1.59852E-01
42	-1.13431E+00	-3.45735E-02	-1.10397E+00	-1.53746E-01
43	-1.10942E+00	-2.84146E-02	-1.08002E+00	-1.47776E-01
44	-1.08455E+00	-2.22464E-02	-1.05607E+00	-1.41950E-01
45	-1.05970E+00	-1.63631E-02	-1.03213E+00	-1.36249E-01
46	-1.03487E+00	-1.07528E-02	-1.00819E+00	-1.30662E-01
47	-1.01006E+00	-5.40142E-03	-9.84245E-01	-1.25178E-01
48	-9.85276E-01	-2.94496E-04	-9.60298E-01	-1.19785E-01
49	-9.60519E-01	4.56283E-03	-9.36344E-01	-1.14468E-01
50	-9.27299E-01	1.07947E-02	-9.04195E-01	-1.07472E-01
51	-8.94156E-01	1.66344E-02	-8.72085E-01	-1.00594E-01
52	-8.60525E-01	2.21355E-02	-8.40010E-01	-9.38976E-02
53	-8.27598E-01	2.71866E-02	-8.07967E-01	-8.73383E-02
54	-7.94377E-01	3.19244E-02	-7.75951E-01	-8.09537E-02
55	-7.61166E-01	3.62543E-02	-7.43960E-01	-7.47508E-02
56	-7.27969E-01	4.02540E-02	-7.11990E-01	-6.87009E-02
57	-6.94796E-01	4.38526E-02	-6.80036E-01	-6.28726E-02
58	-6.61622E-01	4.710[illegible]9E-02	-6.48097E-01	-5.72002E-02
59	-6.28479E-01	4.99776E-02	-6.16167E-01	-5.17548E-02
60	-5.95359E-01	5.24691E-02	-5.84244E-01	-4.65031E-02
61	-5.62265E-01	5.46208E-02	-5.52325E-01	-4.14616E-02
62	-5.29199E-01	5.63623E-02	-5.20405E-01	-3.66653E-02
63	-4.96164E-01	5.77464E-02	-4.88483E-01	-3.20564E-02
64	-4.63161E-01	5.88020E-02	-4.56556E-01	-2.77245E-02
65	-4.30194E-01	5.94795E-02	-4.24619E-01	-2.35904E-02
66	-3.94568E-01	5.97738E-02	-3.90065E-01	-1.94432E-02
67	-3.58975E-01	5.96528E-02	-3.55502E-01	-1.55643E-02
68	-3.23418E-01	5.91319E-02	-3.20926E-01	-1.20747E-02
69	-2.87904E-01	5.81156E-02	-2.86331E-01	-8.86165E-03
70	-2.52435E-01	5.64501E-02	-2.51712E-01	-5.09419E-03
71	-2.17017E-01	5.44811E-02	-2.17064E-01	-3.63771E-03
72	-1.81652E-01	5.19498E-02	-1.82382E-01	-1.65642E-03
73	-1.46346E-01	4.83633E-02	-1.47661E-01	-4.90450E-05
74	-1.11113E-01	4.54274E-02	-1.12897E-01	1.07134E-03
75	-7.59244E-02	4.13803E-02	-7.80840E-02	1.74848E-03
76	-4.08152E-02	3.68003E-02	-4.32186E-02	1.93126E-03
77	-5.77810E-03	3.16513E-02	-8.29667E-03	1.59617E-03
78	2.91843E-02	2.59889E-02	2.66859E-02	7.64303E-04
79	6.41695E-02	1.96992E-02	6.17327E-02	-6.64903E-04
80	9.88754E-02	1.29171E-02	9.68473E-02	-2.58930E-03
81	1.33671E-01	5.43613E-03	1.32032E-01	-5.20754E-03

POINT NO	XSEMI	YSEMI
1	-2.13772E+00	-6.06569E-01
2	-2.13820E+00	-6.06890E-01
3	-2.13871E+00	-6.07159E-01
4	-2.13925E+00	-6.07373E-01
5	-2.13981E+00	-6.07531E-01
6	-2.14037E+00	-6.07631E-01
7	-2.14095E+00	-6.07670E-01
8	-2.14153E+00	-6.07650E-01

POINT NO	XSEMI	YSEMI
9	-2.14210E+00	-6.07569E-01
10	-2.14265E+00	-6.07430E-01
11	-2.14319E+00	-6.07233E-01
12	-2.14371E+00	-6.06981E-01
13	-2.14420E+00	-6.06676E-01
14	-2.14465E+00	-6.06322E-01
15	-2.145 6E+00	-6.05923E-01
16	-2.14542E+00	-6.05483E-01
17	-2.14574E+00	-6.05007E-01
18	-2.14614E+00	-6.04499E-01
19	-2.14621E+00	-6.03967E-01
20	-2.14637E+00	-6.03415E-01
21	-2.14646E+00	-6.02849E-01
22	-2.14650E+00	-6.02276E-01
23	-2.14647E+00	-6.01702E-01
24	-2.14638E+00	-6.01134E-01
25	-2.14624E+00	-6.00577E-01
26	-2.14603E+00	-6.00037E-01
27	-2.14578E+00	-5.99522E-01
28	-2.14546E+00	-5.99035E-01
29	-2.14511E+00	-5.99583E-01
30	-2.14470E+00	-5.95170E-01
31	-2.14425E+00	-5.97801E-01

SECTION NUMBER 8 'Z' = 7.3750

SECTION PROPERTIES

SECTION AREA		=	2.1760E-01
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	-1.0551E+00
	YBAR	=	-1.2983E-01
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	5.0126E-03
	IY	=	6.4320E-02
	IXY	=	1.6691E-02
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	6.3815E-04 (AT 14.69 DEGREES TO 'X' AXIS)
	IPY	=	6.8695E-02 (AT 14.69 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	8.3007E-04

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.18916E+00	-6.13456E-01	-2.18225E+00	-6.28412E-01
2	-2.16132E+00	-5.95865E-01	-2.15214E+00	-6.09038E-01
3	-2.13474E+00	-5.72887E-01	-2.12211E+00	-5.90378E-01
4	-2.10752E+00	-5.50431E-01	-2.09218E+00	-5.72206E-01
5	-2.08025E+00	-5.28481E-01	-2.06233E+00	-5.54553E-01
6	-2.05235E+00	-5.07023E-01	-2.03257E+00	-5.37381E-01
7	-2.02562E+00	-4.86041E-01	-2.00290E+00	-5.20642E-01
8	-1.99822E+00	-4.65486E-01	-1.97331E+00	-5.04313E-01
9	-1.97077E+00	-4.45362E-01	-1.94380E+00	-4.88419E-01
10	-1.94329E+00	-4.25681E-01	-1.91436E+00	-4.72914E-01

POINT NO	XS	YS	XP	YP
11	-1.91577E+00	-4.06430E-01	-1.88501E+00	-4.57805E-01
12	-1.88822E+00	-3.87597E-01	-1.85573E+00	-4.43053E-01
13	-1.86063E+00	-3.69165E-01	-1.82653E+00	-4.28610E-01
14	-1.83310E+00	-3.51100E-01	-1.79739E+00	-4.14480E-01
15	-1.80533E+00	-3.33396E-01	-1.76832E+00	-4.00664E-01
16	-1.77763E+00	-3.16066E-01	-1.73932E+00	-3.87144E-01
17	-1.74996E+00	-2.99100E-01	-1.71038E+00	-3.73889E-01
18	-1.72671E+00	-2.85198E-01	-1.68626E+00	-3.63006E-01
19	-1.70349E+00	-2.71531E-01	-1.66221E+00	-3.52316E-01
20	-1.68024E+00	-2.58113E-01	-1.63824E+00	-3.41823E-01
21	-1.65696E+00	-2.44953E-01	-1.61435E+00	-3.31530E-01
22	-1.63365E+00	-2.32057E-01	-1.59053E+00	-3.21442E-01
23	-1.61031E+00	-2.13433E-01	-1.56678E+00	-3.11562E-01
24	-1.58694E+00	-2.07087E-01	-1.54312E+00	-3.01894E-01
25	-1.56354E+00	-1.95025E-01	-1.51953E+00	-2.92443E-01
26	-1.54019E+00	-1.83255E-01	-1.49601E+00	-2.83211E-01
27	-1.51662E+00	-1.71763E-01	-1.47257E+00	-2.74203E-01
28	-1.49310E+00	-1.60616E-01	-1.44921E+00	-2.65422E-01
29	-1.46955E+00	-1.49761E-01	-1.42592E+00	-2.56872E-01
30	-1.44596E+00	-1.39225E-01	-1.40271E+00	-2.48556E-01
31	-1.42233E+00	-1.29014E-01	-1.37957E+00	-2.40478E-01
32	-1.39867E+00	-1.19136E-01	-1.35650E+00	-2.32637E-01
33	-1.37496E+00	-1.09598E-01	-1.33351E+00	-2.25040E-01
34	-1.34692E+00	-9.94881E-02	-1.30824E+00	-2.16951E-01
35	-1.32266E+00	-8.98031E-02	-1.28391E+00	-2.09137E-01
36	-1.29654E+00	-8.05333E-02	-1.25782E+00	-2.01579E-01
37	-1.27043E+00	-7.16654E-02	-1.23266E+00	-1.94263E-01
38	-1.24427E+00	-6.31856E-02	-1.20752E+00	-1.87176E-01
39	-1.21815E+00	-5.50821E-02	-1.18241E+00	-1.80301E-01
40	-1.19205E+00	-4.73433E-02	-1.15732E+00	-1.73617E-01
41	-1.16596E+00	-3.99517E-02	-1.13224E+00	-1.67107E-01
42	-1.13989E+00	-3.29892E-02	-1.10718E+00	-1.60759E-01
43	-1.11384E+00	-2.61455E-02	-1.08213E+00	-1.54562E-01
44	-1.08781E+00	-1.97115E-02	-1.05708E+00	-1.48504E-01
45	-1.06181E+00	-1.35775E-02	-1.03204E+00	-1.42570E-01
46	-1.03584E+00	-7.72951E-03	-1.00701E+00	-1.36746E-01
47	-1.00993E+00	-2.15140E-03	-9.81977E-01	-1.31021E-01
48	-9.83991E-01	3.17211E-03	-9.56942E-01	-1.25383E-01
49	-9.58114E-01	8.25795E-03	-9.31904E-01	-1.19821E-01
50	-9.23748E-01	1.46668E-02	-8.98654E-01	-1.12546E-01
51	-8.89368E-01	2.07181E-02	-8.65445E-01	-1.05390E-01
52	-8.54982E-01	2.63755E-02	-8.32275E-01	-9.84029E-02
53	-8.20546E-01	3.16541E-02	-7.99138E-01	-9.16382E-02
54	-7.86191E-01	3.65637E-02	-7.66031E-01	-8.48605E-02
55	-7.51737E-01	4.10624E-02	-7.32950E-01	-7.83422E-02
56	-7.17418E-01	4.52102E-02	-6.99890E-01	-7.19966E-02
57	-6.83027E-01	4.89338E-02	-6.66848E-01	-6.58669E-02
58	-6.48659E-01	5.23023E-02	-6.33819E-01	-5.98985E-02
59	-6.14326E-01	5.52601E-02	-6.00800E-01	-5.41732E-02
60	-5.79372E-01	5.78296E-02	-5.67787E-01	-4.86330E-02
61	-5.45660E-01	6.00197E-02	-5.34775E-01	-4.33317E-02
62	-5.11372E-01	6.17821E-02	-5.01762E-01	-3.82707E-02
63	-4.77113E-01	6.31946E-02	-4.68743E-01	-3.34256E-02
64	-4.42894E-01	6.41624E-02	-4.35714E-01	-2.88721E-02
65	-4.08633E-01	6.47824E-02	-4.02673E-01	-2.45229E-02
66	-3.71864E-01	6.49552E-02	-3.67041E-01	-2.01951E-02
67	-3.35073E-01	6.47078E-02	-3.31393E-01	-1.61349E-02

POINT NO	XS	YS	XP	YP
68	-2.98322E-03	6.33111E-02	-2.95725E-01	-1.24923E-02
69	-2.61616E-01	6.27010E-02	-2.60030E-01	-9.14091E-03
70	-2.24959E-01	6.09121E-02	-2.24305E-01	-6.25041E-03
71	-1.88356E-01	5.86826E-02	-1.88543E-01	-3.69737E-03
72	-1.51811E-01	5.56724E-02	-1.52739E-01	-1.62927E-03
73	-1.15329E-01	5.25716E-02	-1.16888E-01	3.91793E-05
74	-7.69147E-02	4.87029E-02	-8.09861E-02	1.20884E-03
75	-4.25710E-02	4.42886E-02	-4.50279E-02	1.90917E-03
76	-6.30210E-03	3.93222E-02	-9.00894E-03	2.10089E-03
77	2.98887E-02	3.37534E-02	2.70751E-02	1.74791E-03
78	6.59931E-02	2.76511E-02	6.32283E-02	8.81098E-04
79	1.02023E-01	2.08885E-02	9.94544E-02	-6.11479E-04
80	1.37962E-01	1.36123E-02	1.35757E-01	-2.61907E-03
81	1.73812E-01	5.60344E-03	1.72139E-01	-5.35242E-03

POINT NO	XSEMI	YSEMI
1	-2.18225E+00	-6.28412E-01
2	-2.18275E+00	-6.28751E-01
3	-2.18327E+00	-6.29037E-01
4	-2.18383E+00	-6.29267E-01
5	-2.18440E+00	-6.29439E-01
6	-2.18499E+00	-6.29550E-01
7	-2.18559E+00	-6.29600E-01
8	-2.18618E+00	-6.29588E-01
9	-2.18677E+00	-6.29513E-01
10	-2.18735E+00	-6.29378E-01
11	-2.18791E+00	-6.29183E-01
12	-2.18845E+00	-6.28931E-01
13	-2.18895E+00	-6.28623E-01
14	-2.18942E+00	-6.28265E-01
15	-2.18985E+00	-6.27859E-01
16	-2.19023E+00	-6.27410E-01
17	-2.19056E+00	-6.26923E-01
18	-2.19084E+00	-6.26403E-01
19	-2.19106E+00	-6.25856E-01
20	-2.19122E+00	-6.25288E-01
21	-2.19132E+00	-6.24705E-01
22	-2.19136E+00	-6.24114E-01
23	-2.19133E+00	-6.23520E-01
24	-2.19125E+00	-6.22932E-01
25	-2.19110E+00	-6.22354E-01
26	-2.19089E+00	-6.21794E-01
27	-2.19063E+00	-6.21257E-01
28	-2.19031E+00	-6.20749E-01
29	-2.18994E+00	-6.20277E-01
30	-2.18952E+00	-6.19844E-01
31	-2.18906E+00	-6.19456E-01

SECTION NUMBER 9 'Z' = 7.7500
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SECTION PROPERTIES

SECTION AREA		= 2.4502E-01	
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	= -1.3705E+00	
	YBAR	= -1.3573E-01	
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	= 6.2859E-03	
	IY	= 7.6823E-02	
	IXY	= 2.0705E-02	
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	= 7.9183E-04	(AT 14.86 DEGREES TO 'X' AXIS)
	IPY	= 8.4317E-02	(AT 14.86 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		= 1.3860E-03	

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.25443E+00	-6.55489E-01	-2.24761E+00	-6.64627E-01
2	-2.22712E+00	-6.33304E-01	-2.21667E+00	-6.43953E-01
3	-2.19935E+00	-6.05860E-01	-2.18583E+00	-6.24017E-01
4	-2.17154E+00	-5.82038E-01	-2.15509E+00	-6.04727E-01
5	-2.14368E+00	-5.58817E-01	-2.12446E+00	-5.86054E-01
6	-2.11576E+00	-5.36177E-01	-2.09392E+00	-5.67962E-01
7	-2.08733E+00	-5.14096E-01	-2.06349E+00	-5.50414E-01
8	-2.05979E+00	-4.92547E-01	-2.03314E+00	-5.33349E-01
9	-2.03173E+00	-4.71485E-01	-2.00289E+00	-5.16749E-01
10	-2.00363E+00	-4.50934E-01	-1.97272E+00	-5.00615E-01
11	-1.97549E+00	-4.31807E-01	-1.94264E+00	-4.84921E-01
12	-1.94731E+00	-4.11175E-01	-1.91264E+00	-4.69637E-01
13	-1.91910E+00	-3.91989E-01	-1.88272E+00	-4.54738E-01
14	-1.89086E+00	-3.73233E-01	-1.85287E+00	-4.40169E-01
15	-1.86259E+00	-3.54872E-01	-1.82309E+00	-4.25906E-01
16	-1.83429E+00	-3.36879E-01	-1.79338E+00	-4.11940E-01
17	-1.80598E+00	-3.19245E-01	-1.76372E+00	-3.98257E-01
18	-1.78116E+00	-3.04040E-01	-1.73772E+00	-3.86438E-01
19	-1.75612E+00	-2.89110E-01	-1.71180E+00	-3.74831E-01
20	-1.73115E+00	-2.74455E-01	-1.68597E+00	-3.63439E-01
21	-1.70615E+00	-2.61083E-01	-1.66022E+00	-3.52269E-01
22	-1.68112E+00	-2.46003E-01	-1.63457E+00	-3.41322E-01
23	-1.65605E+00	-2.32222E-01	-1.60900E+00	-3.30605E-01
24	-1.63095E+00	-2.18747E-01	-1.58351E+00	-3.20122E-01
25	-1.60590E+00	-2.05587E-01	-1.55812E+00	-3.09877E-01
26	-1.58062E+00	-1.92749E-01	-1.53281E+00	-2.99874E-01
27	-1.55519E+00	-1.80241E-01	-1.50758E+00	-2.90118E-01
28	-1.53011E+00	-1.68072E-01	-1.48245E+00	-2.80613E-01
29	-1.50479E+00	-1.56249E-01	-1.45740E+00	-2.71365E-01
30	-1.47943E+00	-1.44782E-01	-1.43243E+00	-2.62376E-01
31	-1.45402E+00	-1.33678E-01	-1.40755E+00	-2.53652E-01
32	-1.42856E+00	-1.22946E-01	-1.38276E+00	-2.45193E-01
33	-1.40315E+00	-1.12594E-01	-1.35805E+00	-2.37010E-01
34	-1.37521E+00	-1.01752E-01	-1.33118E+00	-2.28401E-01
35	-1.34737E+00	-9.13838E-02	-1.30435E+00	-2.20094E-01

POINT NO	XS	YS	XP	YP
36	-1.31953E+00	-8.14745E-02	-1.27756E+00	-2.12063E-01
37	-1.29159E+00	-7.21085E-02	-1.25079E+00	-2.04289E-01
38	-1.26336E+00	-6.29644E-02	-1.22436E+00	-1.96748E-01
39	-1.23614E+00	-5.43255E-02	-1.19734E+00	-1.89422E-01
40	-1.20823E+00	-4.63791E-02	-1.17365E+00	-1.82356E-01
41	-1.18044E+00	-3.81929E-02	-1.14397E+00	-1.75385E-01
42	-1.15267E+00	-3.06857E-02	-1.11729E+00	-1.68638E-01
43	-1.12492E+00	-2.35324E-02	-1.09163E+00	-1.62049E-01
44	-1.09720E+00	-1.67178E-02	-1.06396E+00	-1.55603E-01
45	-1.06951E+00	-1.02282E-02	-1.03730E+00	-1.49277E-01
46	-1.04156E+00	-4.04279E-03	-1.01064E+00	-1.43059E-01
47	-1.01423E+00	1.85822E-03	-9.83975E-01	-1.36936E-01
48	-9.86641E-01	7.49144E-03	-9.57301E-01	-1.30895E-01
49	-9.59149E-01	1.28752E-02	-9.30618E-01	-1.24904E-01
50	-9.23541E-01	1.95143E-02	-8.96197E-01	-1.17271E-01
51	-8.87968E-01	2.57645E-02	-8.61823E-01	-1.09774E-01
52	-8.52374E-01	3.16403E-02	-8.27492E-01	-1.02383E-01
53	-8.16753E-01	3.71504E-02	-7.93199E-01	-9.51551E-02
54	-7.81139E-01	4.22522E-02	-7.58940E-01	-8.80692E-02
55	-7.45535E-01	4.69975E-02	-7.24712E-01	-8.11448E-02
56	-7.09865E-01	5.13173E-02	-6.90509E-01	-7.44243E-02
57	-6.74225E-01	5.52584E-02	-6.56327E-01	-6.78622E-02
58	-6.38597E-01	5.87872E-02	-6.22162E-01	-6.15368E-02
59	-6.02956E-01	6.18913E-02	-5.88010E-01	-5.54098E-02
60	-5.67336E-01	6.46077E-02	-5.53864E-01	-4.95138E-02
61	-5.31730E-01	6.68556E-02	-5.19722E-01	-4.38893E-02
62	-4.96144E-01	6.87329E-02	-4.85579E-01	-3.84695E-02
63	-4.60591E-01	7.01399E-02	-4.51429E-01	-3.33651E-02
64	-4.25045E-01	7.11215E-02	-4.17269E-01	-2.85069E-02
65	-3.89540E-01	7.16714E-02	-3.83093E-01	-2.39517E-02
66	-3.51438E-01	7.17355E-02	-3.46362E-01	-1.94102E-02
67	-3.13379E-01	7.13065E-02	-3.09603E-01	-1.52257E-02
68	-2.75367E-01	7.03212E-02	-2.72812E-01	-1.14377E-02
69	-2.37417E-01	6.88117E-02	-2.35983E-01	-8.04941E-03
70	-1.99505E-01	6.67500E-02	-1.99111E-01	-5.08218E-03
71	-1.61664E-01	6.41283E-02	-1.62192E-01	-2.56203E-03
72	-1.23859E-01	6.09611E-02	-1.25219E-01	-4.85072E-04
73	-8.61850E-02	5.71972E-02	-8.81884E-02	1.09480E-03
74	-4.85560E-02	5.23961E-02	-5.10954E-02	2.21140E-03
75	-1.18059E-02	4.73670E-02	-1.39356E-02	2.77621E-03
76	2.64617E-02	4.24956E-02	2.32950E-02	2.85935E-03
77	6.38433E-02	3.63568E-02	6.06092E-02	2.33332E-03
78	1.01136E-01	2.97030E-02	9.79837E-02	1.31009E-03
79	1.38337E-01	2.23384E-02	1.35448E-01	-3.84422E-04
80	1.75445E-01	1.44639E-02	1.72998E-01	-2.58884E-03
81	2.12456E-01	5.82988E-03	2.10633E-01	-5.54457E-03

POINT NO	XSEMI	YSEMI
1	-2.24761E+00	-6.64627E-01
2	-2.24812E+00	-6.64992E-01
3	-2.24860E+00	-6.65302E-01
4	-2.24924E+00	-6.65556E-01
5	-2.24933E+00	-6.65749E-01
6	-2.25044E+00	-6.65880E-01
7	-2.25136E+00	-6.65946E-01
8	-2.25168E+00	-6.65949E-01

POINT NO	XSEMI	YSEMI
9	-2.25229E+00	-6.65887E-01
10	-2.25239E+00	-6.65761E-01
11	-2.25348E+00	-6.65572E-01
12	-2.25434E+00	-6.65323E-01
13	-2.25457E+00	-6.65017E-01
14	-2.25516E+00	-6.64656E-01
15	-2.25551E+00	-6.64244E-01
16	-2.25591E+00	-6.63787E-01
17	-2.25626E+00	-6.63289E-01
18	-2.25656E+00	-6.62755E-01
19	-2.25658E+00	-6.62192E-01
20	-2.25697E+00	-6.61606E-01
21	-2.25709E+00	-6.61033E-01
22	-2.25714E+00	-6.60389E-01
23	-2.25712E+00	-6.59771E-01
24	-2.25704E+00	-6.59157E-01
25	-2.25690E+00	-6.58553E-01
26	-2.25659E+00	-6.57965E-01
27	-2.25643E+00	-6.57400E-01
28	-2.25610E+00	-6.56864E-01
29	-2.25572E+00	-6.56364E-01
30	-2.25530E+00	-6.55973E-01
31	-2.25483E+00	-6.55489E-01

SECTION NUMBER 11 'Z' = 8.1250
****

SECTION PROPERTIES

SECTION AREA		= 2.7780E-01	
LOCATION OF CENTROID	XBAR	= -1.0926E+00	
RELATIVE TO STACK AXIS	YBAR	= -1.4371E-01	
SECOND MOMENTS OF AREA	IX	= 8.2036E-03	
ABOUT CENTROID	IY	= 9.7241E-02	
	IXY	= 2.6271E-02	
PRINCIPAL SECOND MOMENTS	IPX	= 1.0301E-03	(AT 15.27 DEGREES TO 'X' AXIS)
OF AREA ABOUT CENTROID	IPY	= 1.0441E-01	(AT 15.27 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		= 1.4475E-03	

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.32310E+00	-7.05630E-01	-2.31528E+00	-7.14881E-01
2	-2.29516E+00	-6.77972E-01	-2.28359E+00	-6.92040E-01
3	-2.26636E+00	-6.51241E-01	-2.25293E+00	-6.70125E-01
4	-2.23879E+00	-6.25276E-01	-2.22059E+00	-6.49009E-01
5	-2.21056E+00	-6.00049E-01	-2.18928E+00	-6.28650E-01
6	-2.18227E+00	-5.75529E-01	-2.15809E+00	-6.09007E-01
7	-2.15392E+00	-5.51688E-01	-2.12701E+00	-5.90036E-01
8	-2.12558E+00	-5.29497E-01	-2.09604E+00	-5.71695E-01
9	-2.09713E+00	-5.05924E-01	-2.06518E+00	-5.53910E-01
10	-2.06871E+00	-4.83920E-01	-2.03442E+00	-5.36653E-01

POINT NO	XS	YS	XP	YP
11	-2.03913E+00	-4.62457E-01	-2.00376E+00	-5.19917E-01
12	-2.01131E+00	-4.41533E-01	-1.97318E+00	-5.03665E-01
13	-1.98256E+00	-4.21126E-01	-1.94269E+00	-4.87860E-01
14	-1.95397E+00	-4.01209E-01	-1.91227E+00	-4.72465E-01
15	-1.92525E+00	-3.81755E-01	-1.88193E+00	-4.57445E-01
16	-1.89650E+00	-3.62738E-01	-1.85164E+00	-4.42753E-01
17	-1.86774E+00	-3.44128E-01	-1.82142E+00	-4.28350E-01
18	-1.84097E+00	-3.27162E-01	-1.79339E+00	-4.15202E-01
19	-1.81417E+00	-3.10513E-01	-1.76546E+00	-4.02308E-01
20	-1.78733E+00	-2.94186E-01	-1.73761E+00	-3.89673E-01
21	-1.76044E+00	-2.78194E-01	-1.70987E+00	-3.77300E-01
22	-1.73351E+00	-2.62544E-01	-1.68221E+00	-3.65192E-01
23	-1.70653E+00	-2.47245E-01	-1.65466E+00	-3.53354E-01
24	-1.67949E+00	-2.32303E-01	-1.62719E+00	-3.41789E-01
25	-1.65241E+00	-2.17728E-01	-1.59982E+00	-3.30501E-01
26	-1.62527E+00	-2.03527E-01	-1.57255E+00	-3.19495E-01
27	-1.59817E+00	-1.89709E-01	-1.54536E+00	-3.08775E-01
28	-1.57091E+00	-1.76283E-01	-1.51828E+00	-2.98344E-01
29	-1.54353E+00	-1.63256E-01	-1.49128E+00	-2.88206E-01
30	-1.51612E+00	-1.50639E-01	-1.46438E+00	-2.78366E-01
31	-1.48858E+00	-1.38443E-01	-1.43756E+00	-2.68828E-01
32	-1.46118E+00	-1.26668E-01	-1.41084E+00	-2.59592E-01
33	-1.43362E+00	-1.15332E-01	-1.38420E+00	-2.50679E-01
34	-1.40349E+00	-1.03622E-01	-1.35558E+00	-2.41414E-01
35	-1.37414E+00	-9.24463E-02	-1.32699E+00	-2.32448E-01
36	-1.34439E+00	-8.17665E-02	-1.29844E+00	-2.23777E-01
37	-1.31464E+00	-7.15538E-02	-1.26991E+00	-2.15395E-01
38	-1.28459E+00	-6.15124E-02	-1.24139E+00	-2.07277E-01
39	-1.25514E+00	-5.25306E-02	-1.21290E+00	-1.99404E-01
40	-1.22541E+00	-4.36900E-02	-1.18441E+00	-1.91754E-01
41	-1.19570E+00	-3.52728E-02	-1.15592E+00	-1.84306E-01
42	-1.16603E+00	-2.72618E-02	-1.12744E+00	-1.77032E-01
43	-1.13633E+00	-1.96330E-02	-1.09895E+00	-1.69907E-01
44	-1.10668E+00	-1.23620E-02	-1.07046E+00	-1.62911E-01
45	-1.07706E+00	-5.42589E-03	-1.04195E+00	-1.56035E-01
46	-1.04748E+00	1.18752E-03	-1.01344E+00	-1.49266E-01
47	-1.01792E+00	7.49423E-03	-9.84906E-01	-1.42588E-01
48	-9.88438E-01	1.35171E-02	-9.56355E-01	-1.35983E-01
49	-9.58930E-01	1.92790E-02	-9.27783E-01	-1.29434E-01
50	-9.22321E-01	2.61089E-02	-8.92314E-01	-1.21358E-01
51	-8.85671E-01	3.26050E-02	-8.56697E-01	-1.13385E-01
52	-8.48983E-01	3.87184E-02	-8.21529E-01	-1.05536E-01
53	-8.12262E-01	4.44682E-02	-7.86205E-01	-9.77945E-02
54	-7.75512E-01	4.98429E-02	-7.50920E-01	-9.02289E-02
55	-7.38737E-01	5.47980E-02	-7.15670E-01	-8.28145E-02
56	-7.01942E-01	5.93855E-02	-6.80449E-01	-7.55767E-02
57	-6.65132E-01	6.35265E-02	-6.45252E-01	-6.85689E-02
58	-6.28312E-01	6.72564E-02	-6.10075E-01	-6.17437E-02
59	-5.91487E-01	7.05571E-02	-5.74912E-01	-5.51817E-02
60	-5.54662E-01	7.33753E-02	-5.39757E-01	-4.88744E-02
61	-5.17842E-01	7.57891E-02	-5.04605E-01	-4.28092E-02
62	-4.81033E-01	7.76900E-02	-4.69451E-01	-3.70782E-02
63	-4.44240E-01	7.91375E-02	-4.34288E-01	-3.16067E-02
64	-4.07469E-01	8.03997E-02	-3.99112E-01	-2.64806E-02
65	-3.70724E-01	8.05184E-02	-3.63916E-01	-2.17150E-02
66	-3.31423E-01	8.04857E-02	-3.26201E-01	-1.69512E-02
67	-2.92173E-01	7.97739E-02	-2.88442E-01	-1.26848E-02

POINT NO	XS	YS	XP	YP
68	-2.52978E-01	7.85636E-02	-2.50633E-01	-8.77875E-03
69	-2.13845E-01	7.66583E-02	-2.12771E-01	-5.41461E-03
70	-1.74777E-01	7.42536E-02	-1.74848E-01	-2.42642E-03
71	-1.35780E-01	7.11339E-02	-1.36862E-01	-2.63145E-05
72	-9.65574E-02	6.75101E-02	-9.88062E-02	1.98223E-03
73	-5.80144E-02	6.31649E-02	-6.06773E-02	3.36146E-03
74	-1.92545E-02	5.83365E-02	-2.24709E-02	4.32122E-03
75	1.94156E-02	5.27141E-02	1.58169E-02	4.61576E-03
76	5.80017E-02	4.66040E-02	5.41898E-02	4.46023E-03
77	9.64918E-02	3.97467E-02	9.26508E-02	3.61400E-03
78	1.34836E-01	3.23692E-02	1.31203E-01	2.26739E-03
79	1.73133E-01	2.42296E-02	1.69849E-01	1.92669E-04
80	2.11330E-01	1.55698E-02	2.08591E-01	-2.39171E-03
81	2.49477E-01	6.11375E-03	2.47431E-01	-5.77015E-03

POINT NO	XSEMI	YSEMI
1	-2.31528E+00	-7.14881E-01
2	-2.31580E+00	-7.15282E-01
3	-2.31635E+00	-7.15628E-01
4	-2.31693E+00	-7.15915E-01
5	-2.31754E+00	-7.16140E-01
6	-2.31817E+00	-7.16300E-01
7	-2.31881E+00	-7.16394E-01
8	-2.31945E+00	-7.16421E-01
9	-2.32009E+00	-7.16381E-01
10	-2.32072E+00	-7.16273E-01
11	-2.32134E+00	-7.16099E-01
12	-2.32193E+00	-7.15861E-01
13	-2.32249E+00	-7.15562E-01
14	-2.32301E+00	-7.15205E-01
15	-2.32349E+00	-7.14793E-01
16	-2.32393E+00	-7.14332E-01
17	-2.32431E+00	-7.13826E-01
18	-2.32464E+00	-7.13281E-01
19	-2.32490E+00	-7.12703E-01
20	-2.32511E+00	-7.12098E-01
21	-2.32525E+00	-7.11473E-01
22	-2.32532E+00	-7.10834E-01
23	-2.32533E+00	-7.10190E-01
24	-2.32527E+00	-7.09545E-01
25	-2.32514E+00	-7.08909E-01
26	-2.32494E+00	-7.08288E-01
27	-2.32469E+00	-7.07688E-01
28	-2.32437E+00	-7.07116E-01
29	-2.32400E+00	-7.06578E-01
30	-2.32357E+00	-7.06081E-01
31	-2.32310E+00	-7.05630E-01

SECTION NUMBER 11   'Z' =   8.5000

SECTION PROPERTIES

SECTION AREA		=	3.1536E-01
LOCATION OF CENTROID RELATIVE TO STACK AXIS	XBAR	=	-1.1269E+00
	YBAR	=	-1.5235E-01
SECOND MOMENTS OF AREA ABOUT CENTROID	IX	=	1.1069E-02
	IY	=	1.2105E-01
	IXY	=	3.3996E-02
PRINCIPAL SECOND MOMENTS OF AREA ABOUT CENTROID	IPX	=	1.4090E-03 (AT 15.86 DEGREES TO 'X' AXIS)
	IPY	=	1.3071E-01 (AT 15.86 DEGREES TO 'Y' AXIS)
TORSIONAL CONSTANT		=	1.9164E-03

SECTION COORDINATES

POINT NO	XS	YS	XP	YP
1	-2.43591E+00	-7.72349E-01	-2.39729E+00	-7.81579E-01
2	-2.37748E+00	-7.43993E-01	-2.36464E+00	-7.55345E-01
3	-2.34898E+00	-7.13833E-01	-2.33217E+00	-7.30298E-01
4	-2.32341E+00	-6.81645E-01	-2.29986E+00	-7.06268E-01
5	-2.29176E+00	-6.53386E-01	-2.26776E+00	-6.83201E-01
6	-2.263[illegible]3E+00	-6.26017E-01	-2.23570E+00	-6.61041E-01
7	-2.23422E+00	-5.99497E-01	-2.20384E+00	-6.39734E-01
8	-2.20535E+00	-5.73787E-01	-2.17212E+00	-6.19226E-01
9	-2.17640E+00	-5.48851E-01	-2.14053E+00	-5.99467E-01
10	-2.14718E+00	-5.24649E-01	-2.10905E+00	-5.80379E-01
11	-2.11831E+00	-5.011[illegible]E-01	-2.07769E+00	-5.61904E-01
12	-2.08915E+00	-4.78249E-01	-2.04644E+00	-5.44027E-01
13	-2.05936E+00	-4.55980E-01	-2.01527E+00	-5.26708E-01
14	-2.03372E+00	-4.34334E-01	-1.98419E+00	-5.09898E-01
15	-2.00145E+00	-4.13188E-01	-1.95318E+00	-4.93551E-01
16	-1.97213E+00	-3.92595E-01	-1.92224E+00	-4.77620E-01
17	-1.94283E+00	-3.72491E-01	-1.89136E+00	-4.62054E-01
18	-1.91497E+00	-3.53223E-01	-1.86114E+00	-4.47118E-01
19	-1.88514E+00	-3.34361E-01	-1.83102E+00	-4.32517E-01
20	-1.85622E+00	-3.15917E-01	-1.80099E+00	-4.18237E-01
21	-1.82723E+00	-2.97895E-01	-1.77107E+00	-4.04280E-01
22	-1.79817E+00	-2.80286E-01	-1.74124E+00	-3.90660E-01
23	-1.76904E+00	-2.63100E-01	-1.71151E+00	-3.77379E-01
24	-1.73985E+00	-2.46353E-01	-1.68188E+00	-3.64439E-01
25	-1.71057E+00	-2.30253E-01	-1.65235E+00	-3.51842E-01
26	-1.68123E+00	-2.14238E-01	-1.62291E+00	-3.39569E-01
27	-1.65181E+00	-1.98825E-01	-1.59357E+00	-3.27680E-01
28	-1.62231E+00	-1.83911E-01	-1.56433E+00	-3.16119E-01
29	-1.59274E+00	-1.69472E-01	-1.53518E+00	-3.04905E-01
30	-1.56319E+00	-1.55517E-01	-1.50612E+00	-2.94040E-01
31	-1.53336E+00	-1.42054E-01	-1.47715E+00	-2.83526E-01
32	-1.50356E+00	-1.29090E-01	-1.44827E+00	-2.73340E-01
33	-1.47368E+00	-1.16630E-01	-1.41948E+00	-2.63438E-01
34	-1.44194E+00	-1.03918E-01	-1.38892E+00	-2.53392E-01
35	-1.41978E+00	-9.17747E-02	-1.35839E+00	-2.43661E-01

POINT NO	XS	YS	XP	YP
36	-1.37811E+00	-8.02950E-02	-1.32788E+00	-2.34270E-01
37	-1.34623E+00	-6.91196E-02	-1.29739E+00	-2.25191E-01
38	-1.31435E+00	-5.87873E-02	-1.26691E+00	-2.16410E-01
39	-1.28247E+00	-4.87361E-02	-1.23642E+00	-2.07835E-01
40	-1.25061E+00	-3.92378E-02	-1.20594E+00	-1.99494E-01
41	-1.21874E+00	-3.01744E-02	-1.17545E+00	-1.91368E-01
42	-1.18649E+00	-2.15532E-02	-1.14495E+00	-1.83432E-01
43	-1.15517E+00	-1.33580E-02	-1.11443E+00	-1.75661E-01
44	-1.12337E+00	-5.55646E-03	-1.08389E+00	-1.68031E-01
45	-1.09150E+00	1.84905E-03	-1.05332E+00	-1.60515E-01
46	-1.05976E+00	8.92050E-03	-1.02272E+00	-1.53083E-01
47	-1.02815E+00	1.55869E-02	-9.92095E-01	-1.45729E-01
48	-9.96376E-01	2.21660E-02	-9.61433E-01	-1.38439E-01
49	-9.64742E-01	2.83740E-02	-9.30735E-01	-1.31193E-01
50	-9.27312E-01	3.54614E-02	-8.94145E-01	-1.22609E-01
51	-8.89223E-01	4.22136E-02	-8.57616E-01	-1.14082E-01
52	-8.51377E-01	4.86340E-02	-8.21144E-01	-1.05679E-01
53	-8.13493E-01	5.46625E-02	-7.84724E-01	-9.73918E-02
54	-7.75586E-01	6.03347E-02	-7.48351E-01	-8.92315E-02
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56	-6.99529E-01	7.04459E-02	-6.75724E-01	-7.34878E-02
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68	-2.35167E-01	8.97483E-02	-2.33295E-01	-3.01937E-03
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70	-1.54432E-01	8.44769E-02	-1.55343E-01	3.08818E-03
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72	-7.41449E-02	7.64921E-02	-7.70600E-02	6.98263E-03
73	-3.41113E-02	7.14814E-02	-3.77835E-02	8.06148E-03
74	5.82649E-03	6.57725E-02	1.58833E-03	8.55073E-03
75	4.56677E-02	5.93726E-02	4.12587E-02	8.44431E-03
76	8.54366E-02	5.23361E-02	8.06338E-02	7.67946E-03
77	1.25741E-01	4.45142E-02	1.20337E-01	6.25063E-03
78	1.64549E-01	3.61675E-02	1.60390E-01	4.25440E-03
79	2.03399E-01	2.65846E-02	1.99981E-01	1.49062E-03
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81	2.82503E-01	6.45597E-03	2.83394E-01	-5.31439E-03

POINT NO	XSEMI	YSEMI
1	-2.34729E+00	-7.81579E-01
2	-2.33741E+00	-7.82026E-01
3	-2.34817E+00	-7.82421E-01
4	-2.33576E+00	-7.82754E-01
5	-2.33994E+00	-7.83024E-01
6	-2.41123E+00	-7.83227E-01
7	-2.40739E+00	-7.83362E-01
8	-2.41159E+00	-7.83427E-01

POINT NO	XSEMI	YSEMI
9	-2.40222E+00	-7.83420E-01
10	-2.40288E+00	-7.83343E-01
11	-2.40353E+00	-7.83196E-01
12	-2.40416E+00	-7.82981E-01
13	-2.40475E+00	-7.82699E-01
14	-2.40532E+00	-7.82355E-01
15	-2.40584E+00	-7.81952E-01
16	-2.40631E+00	-7.81494E-01
17	-2.40674E+00	-7.80986E-01
18	-2.40711E+00	-7.80434E-01
19	-2.40741E+00	-7.79844E-01
20	-2.40766E+00	-7.79223E-01
21	-2.40784E+00	-7.78576E-01
22	-2.40795E+00	-7.77912E-01
23	-2.40799E+00	-7.77238E-01
24	-2.40796E+00	-7.76560E-01
25	-2.40786E+00	-7.75887E-01
26	-2.40769E+00	-7.75226E-01
27	-2.40745E+00	-7.74583E-01
28	-2.40715E+00	-7.73967E-01
29	-2.40679E+00	-7.73384E-01
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31	-2.40591E+00	-7.72340E-01

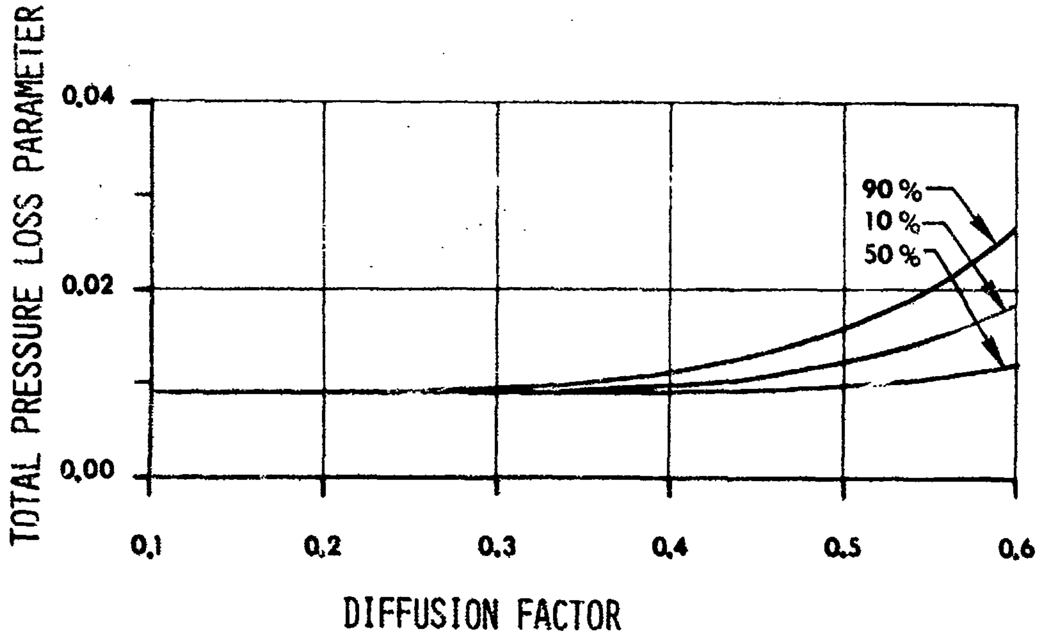

FIGURE 1A. ROTOR LOSS PARAMETER VS DIFFUSION FACTOR

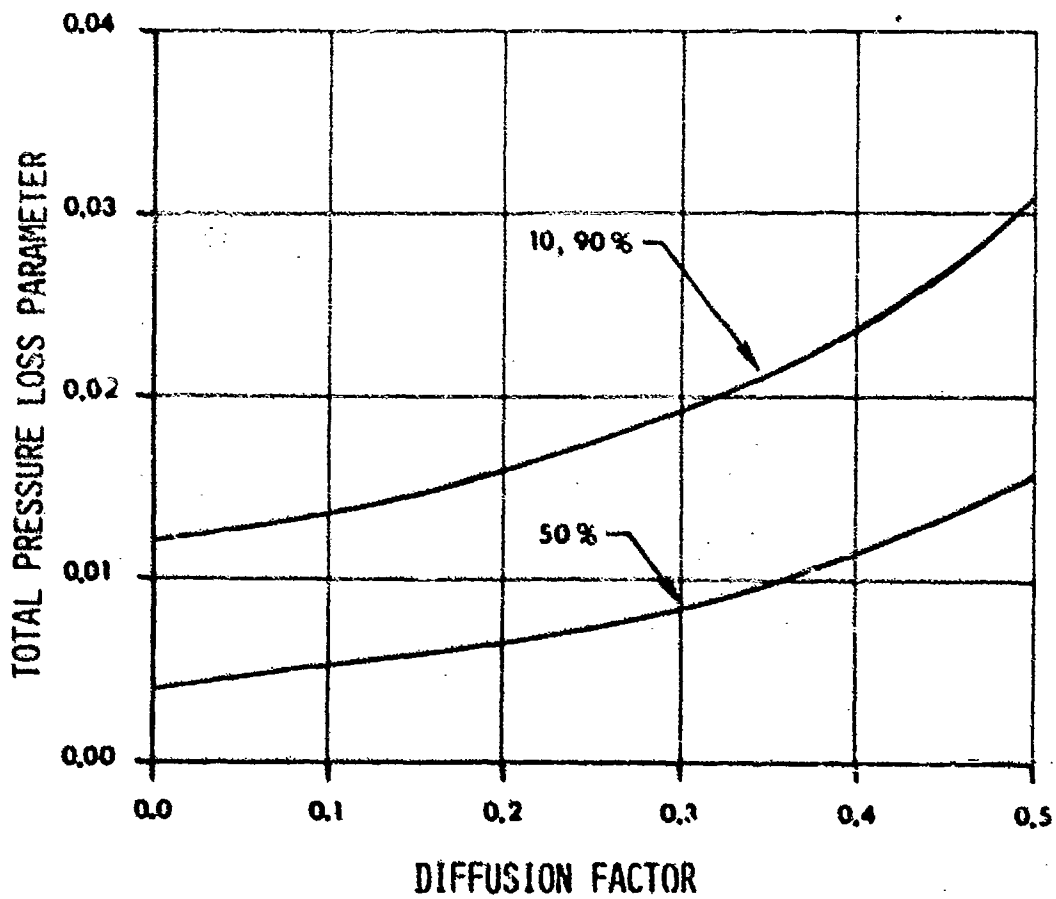

FIGURE 1B. STATOR LOSS PARAMETER VS DIFFUSION FACTOR

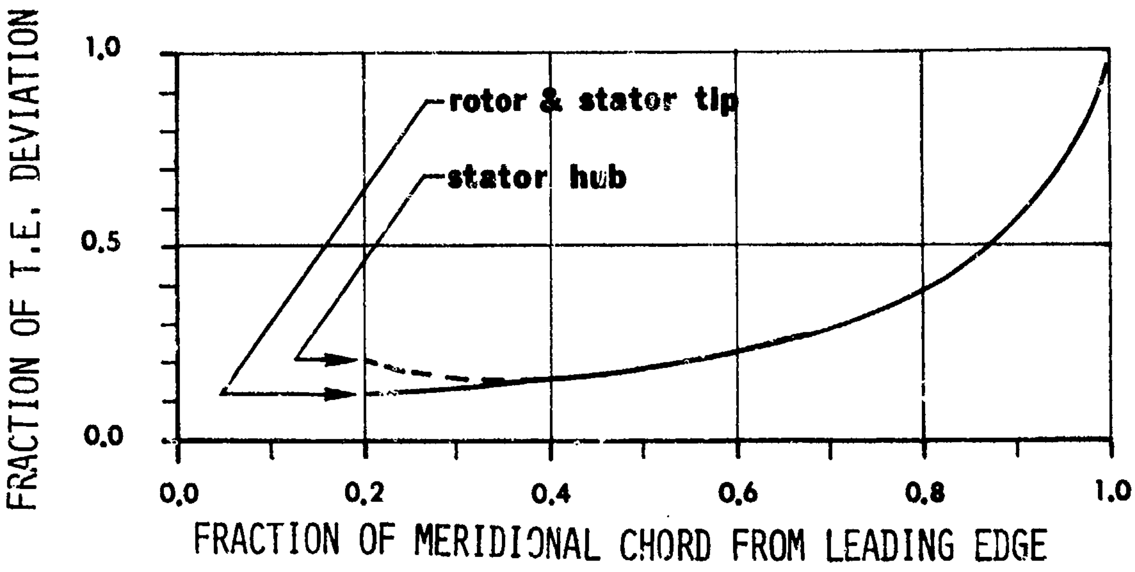

FIGURE 2. DESIGN DISTRIBUTIONS FOR INTRA-BLADE DEVIATION ANGLE

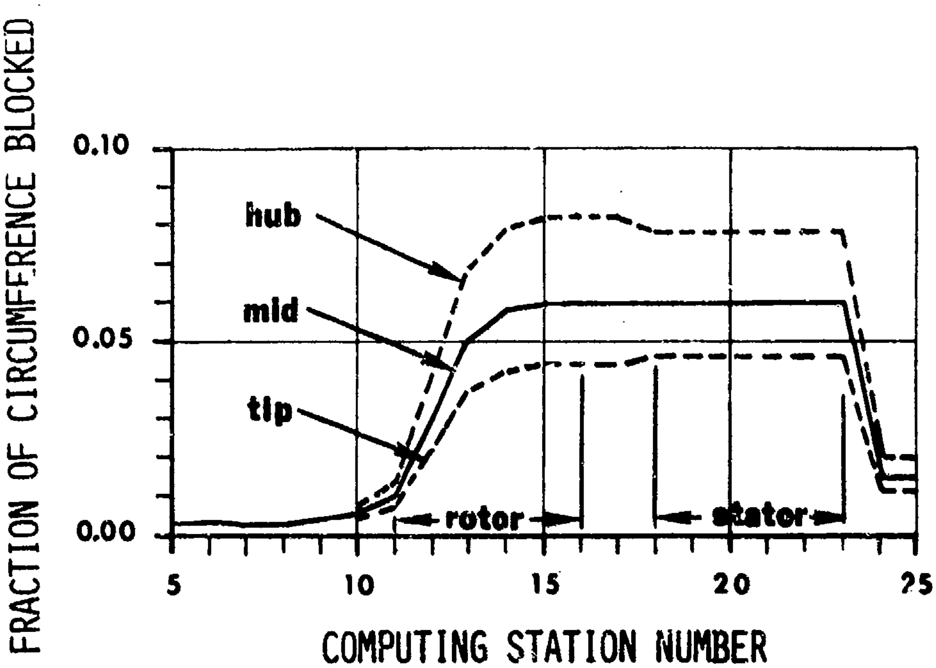

FIGURE 3. MERIDIONAL DISTRIBUTION OF BOUNDARY-LAYER AND WAKE BLOCKAGE

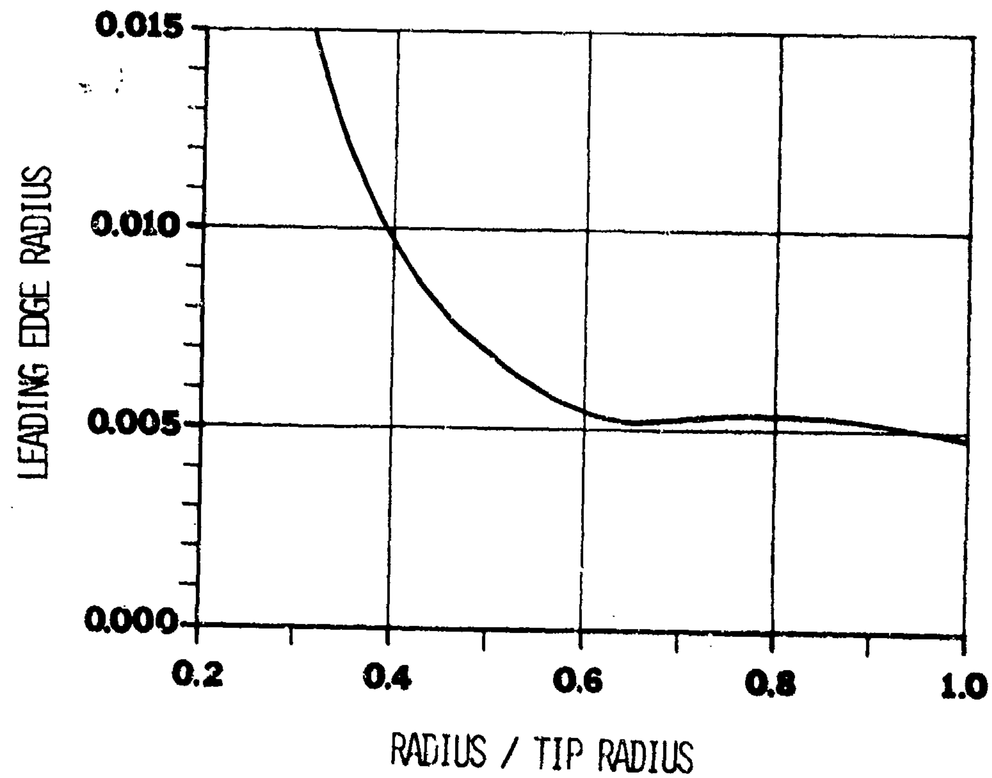

FIGURE 4. ROTOR LEADING EDGE THICKNESS DISTRIBUTION

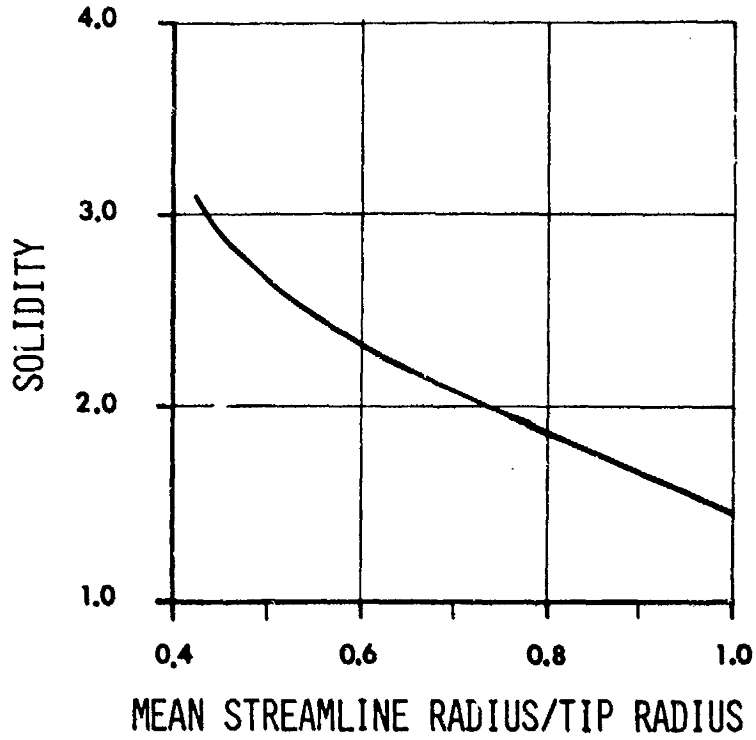

FIGURE 5. ROTOR SOLIDITY DISTRIBUTION

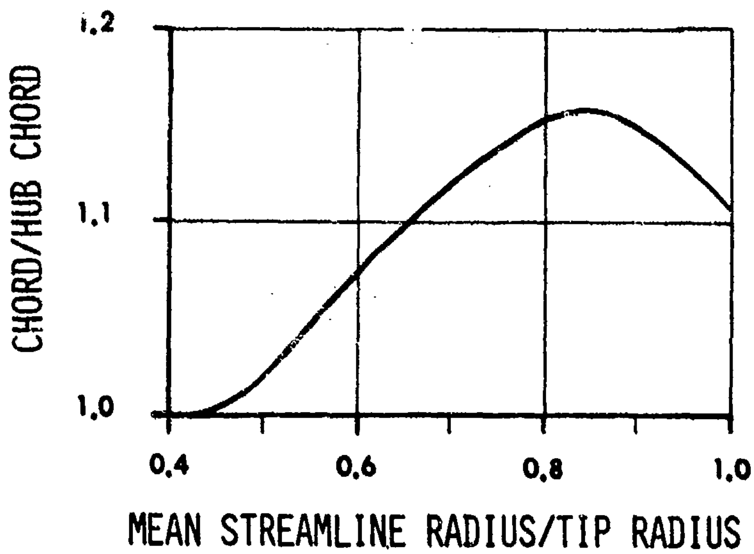

FIGURE 6. ROTOR CHORD LENGTH DISTRIBUTION

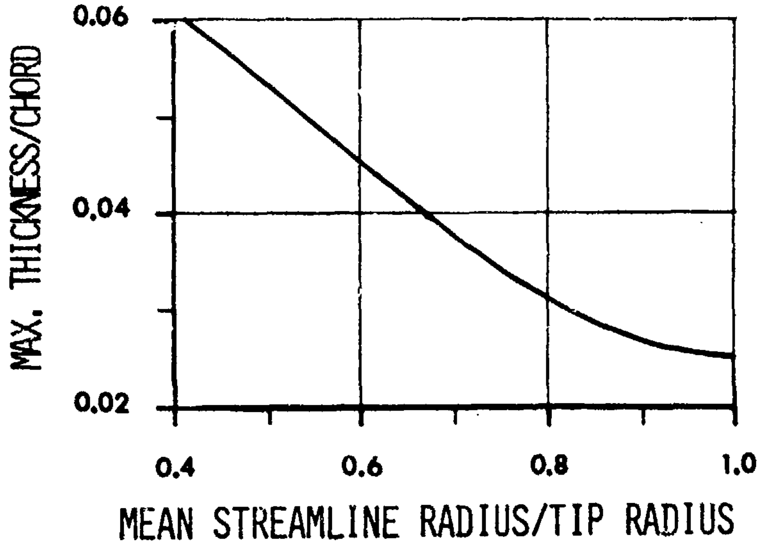

FIGURE 7. ROTOR THICKNESS-TO-CHORD RATIO

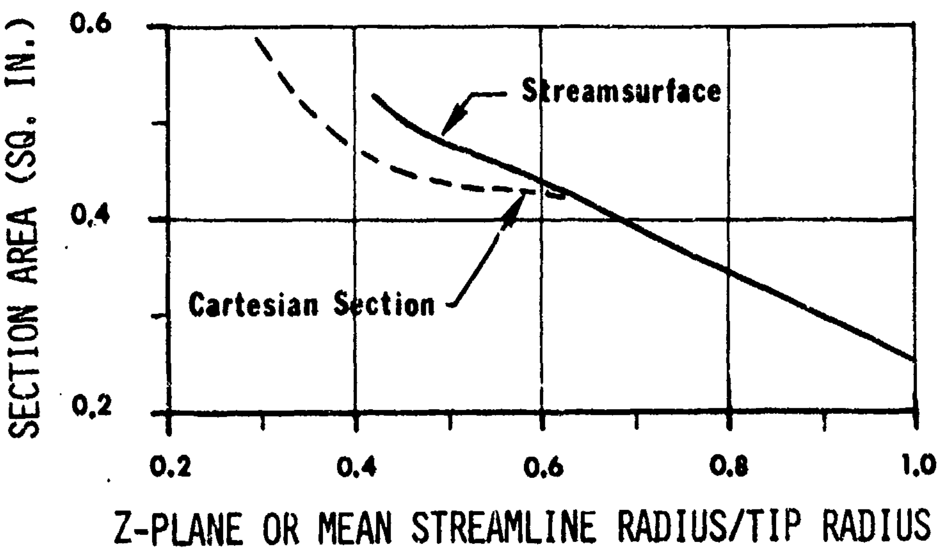

FIGURE 8. ROTOR STREAM SURFACE AND CARTESIAN SECTION AREA DISTRIBUTIONS

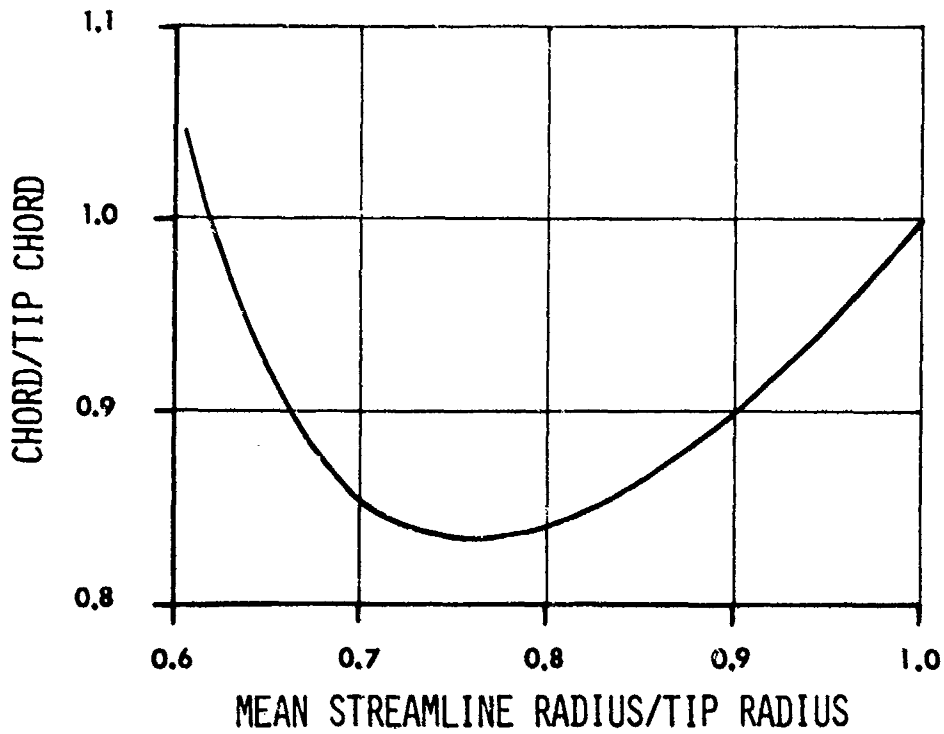

FIGURE 9. STATOR CHORD LENGTH DISTRIBUTION

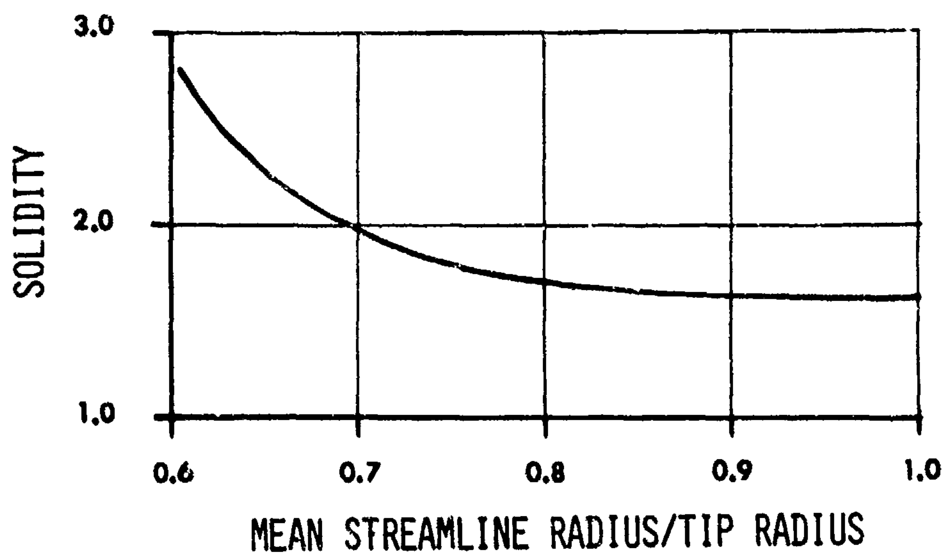

FIGURE 10. STATOR SOLIDITY DISTRIBUTION

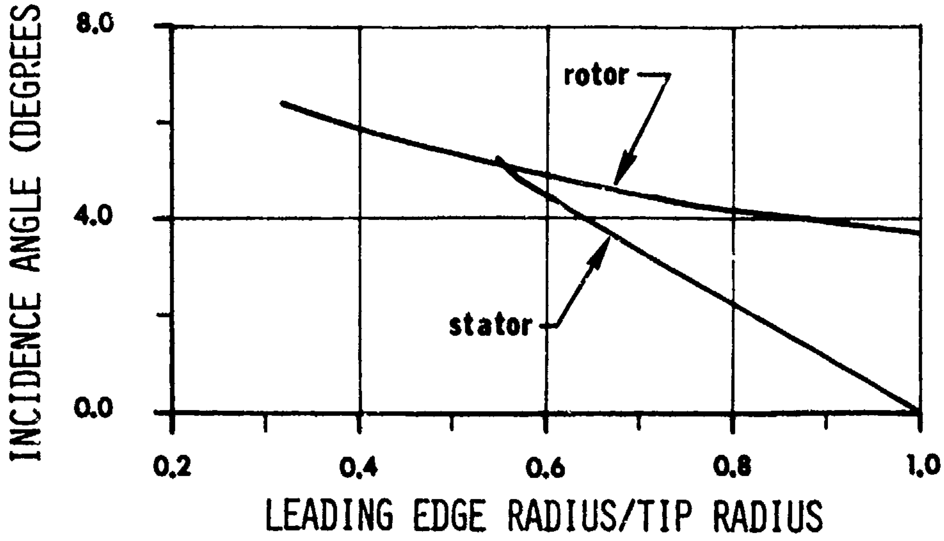

FIGURE 11. ROTOR AND STATOR INCIDENCE DISTRIBUTIONS

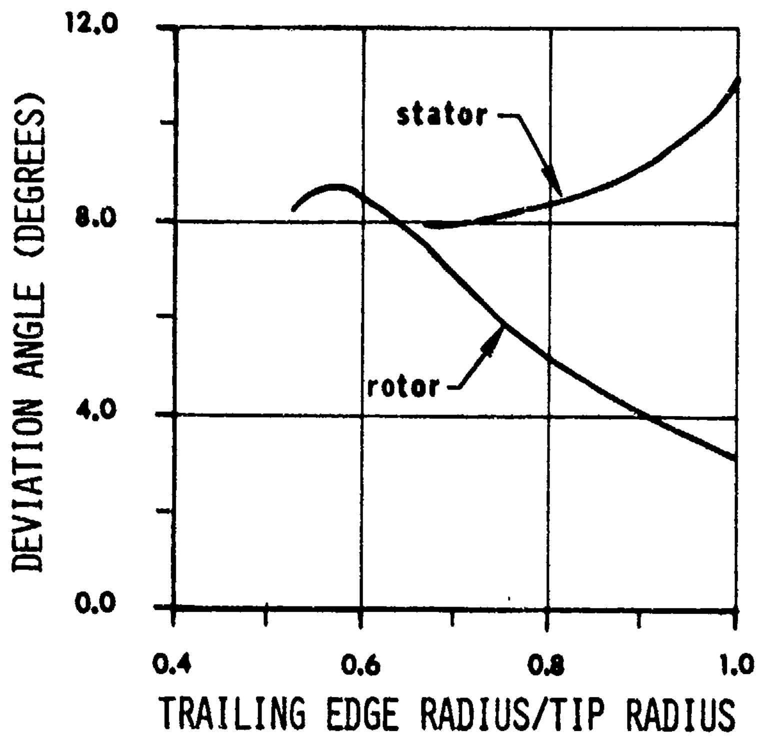

FIGURE 12. ROTOR AND STATOR DEVIATION DISTRIBUTIONS

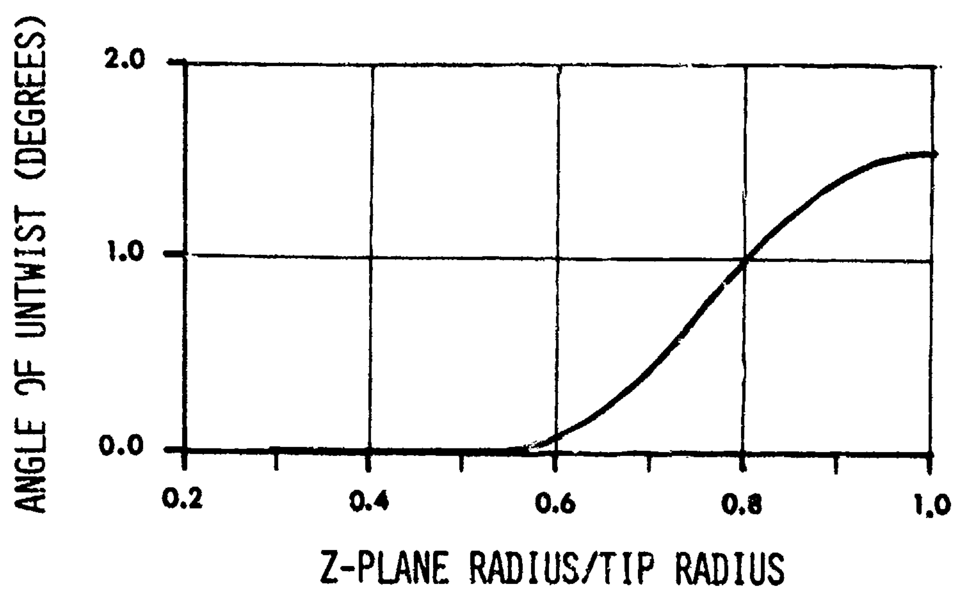

FIGURE 13. ROTOR UNTWIST DISTRIBUTION

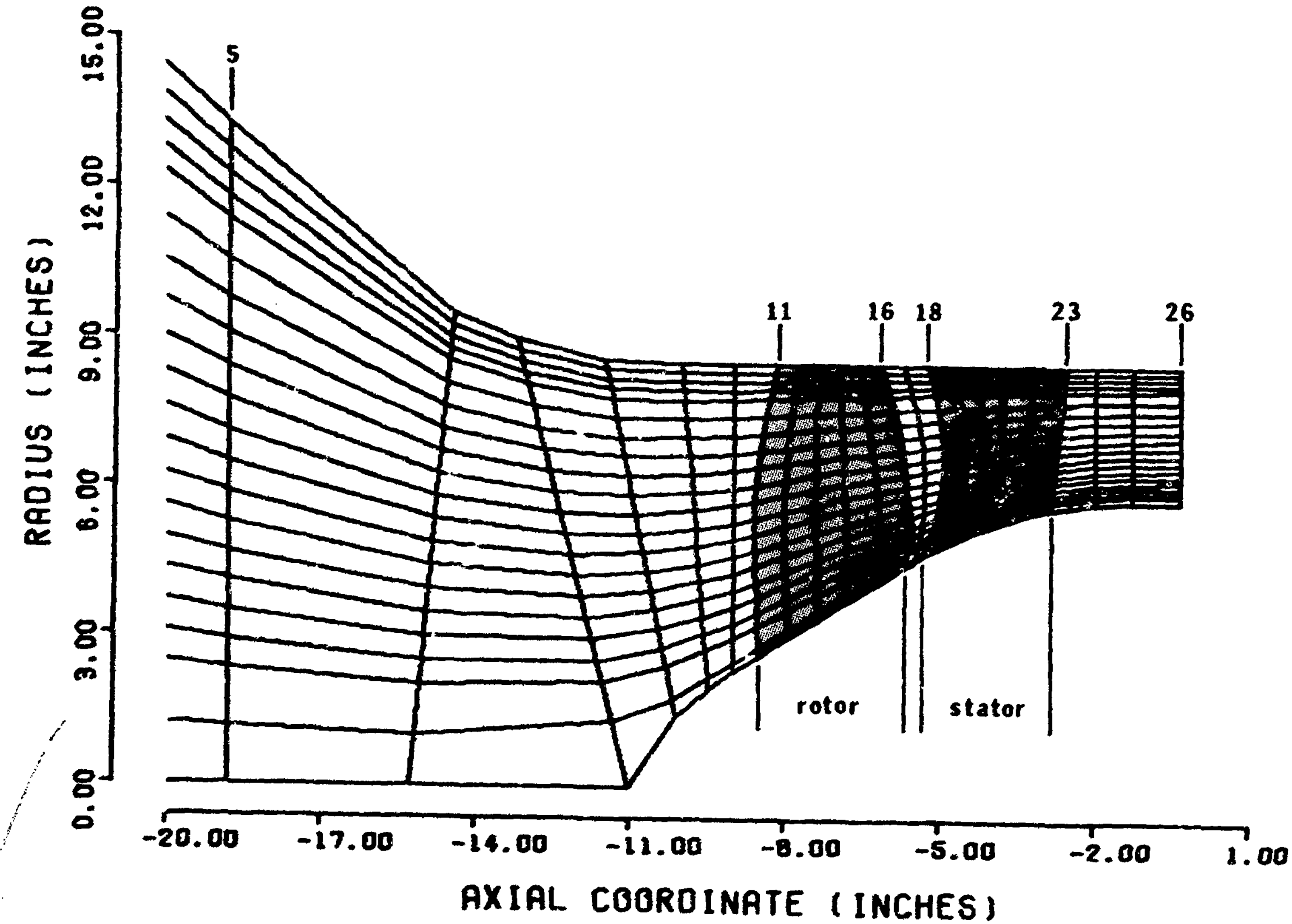

FIGURE 14. MERIDIONAL DISTRIBUTION OF COMPUTING STATIONS

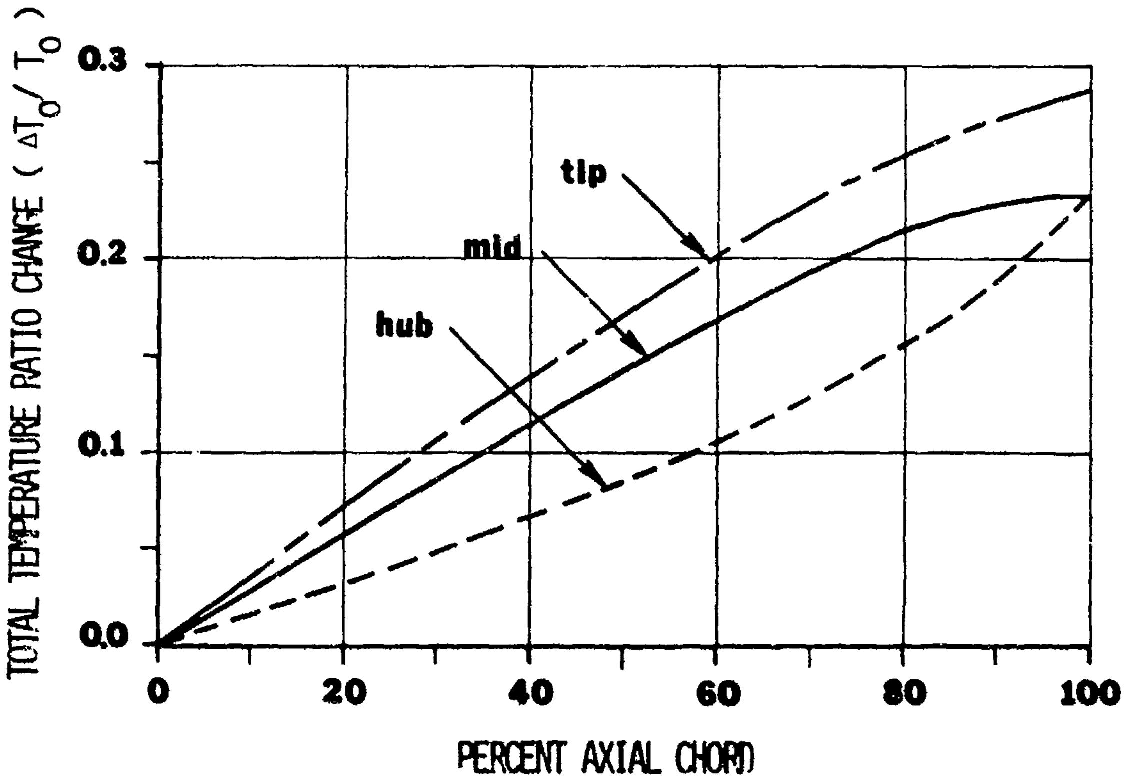

FIGURE 15A. AXIAL DISTRIBUTION OF TOTAL TEMPERATURE THROUGH ROTOR

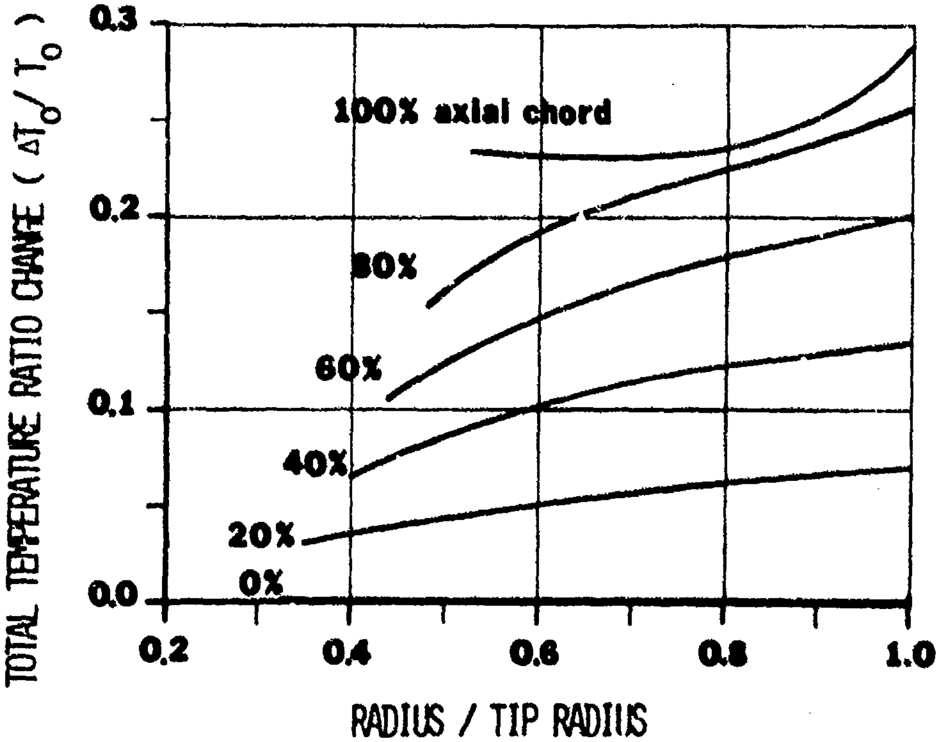

FIGURE 15B. SPANWISE DISTRIBUTION OF TOTAL TEMPERATURE THROUGH ROTOR

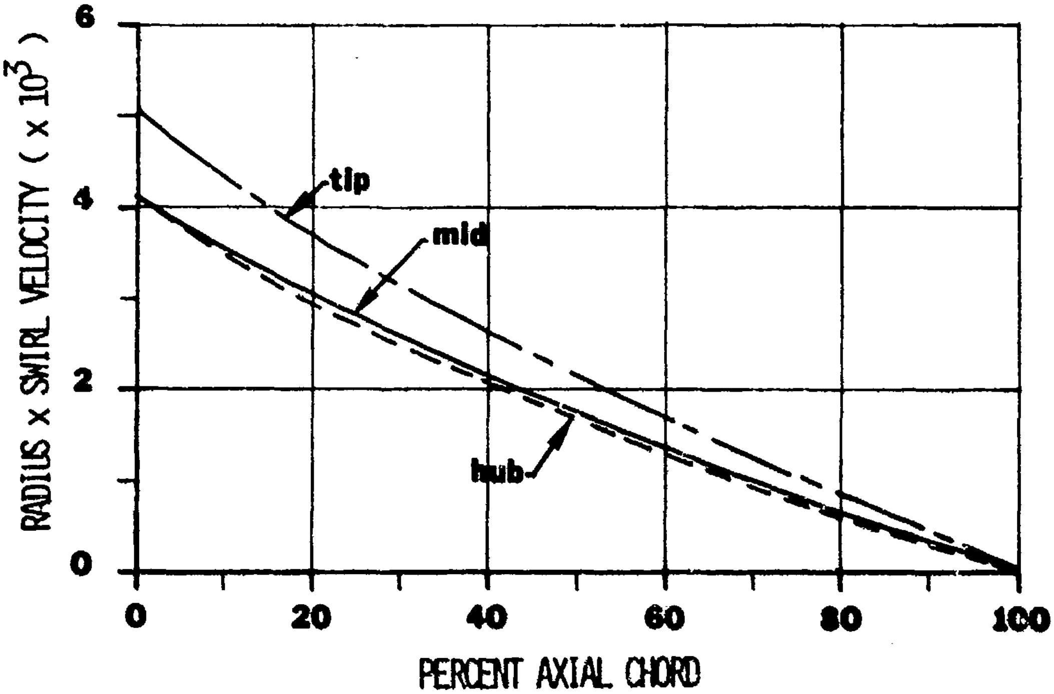

FIGURE 16A. AXIAL DISTRIBUTION OF RADIUS X SWIRL VELOCITY THROUGH STATOR

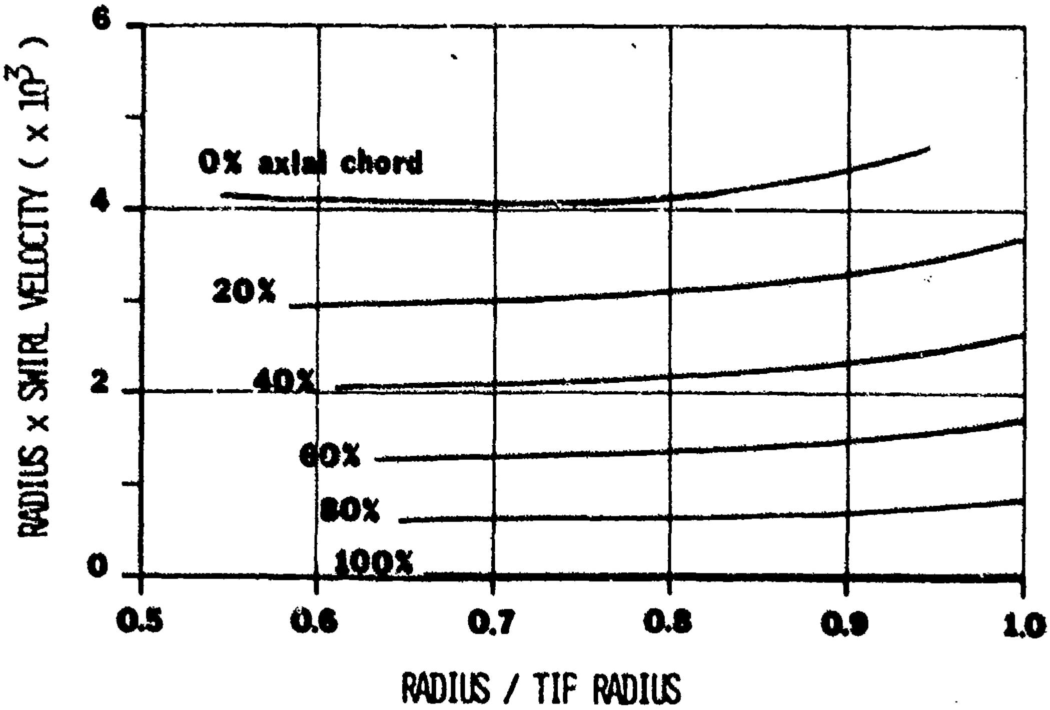

FIGURE 16B. SPANWISE DISTRIBUTION OF RADIUS X SWIRL VELOCITY THROUGH STATOR

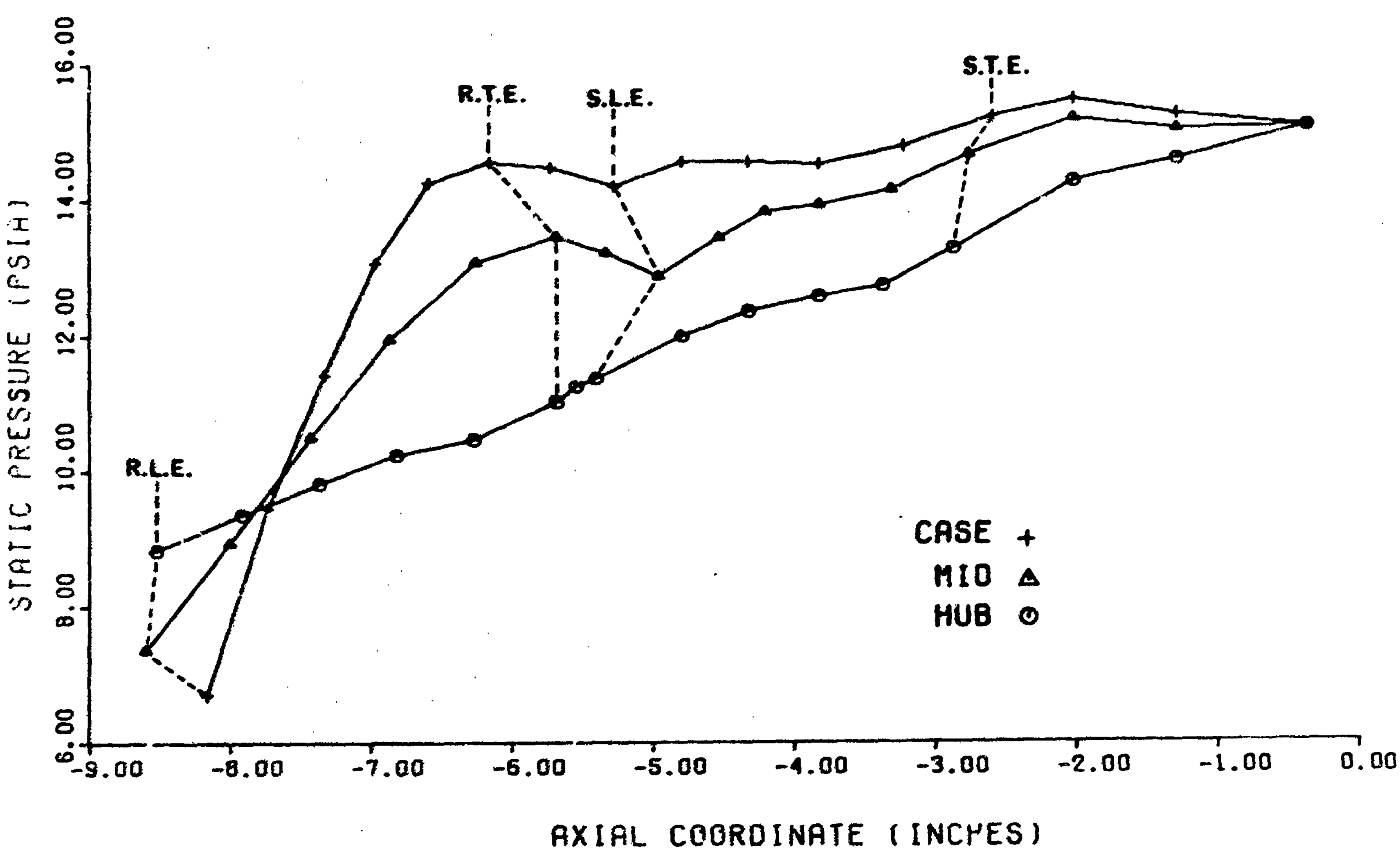

FIGURE 17. MERIDIONAL STATIC PRESSURE DISTRIBUTIONS THROUGH STAGE

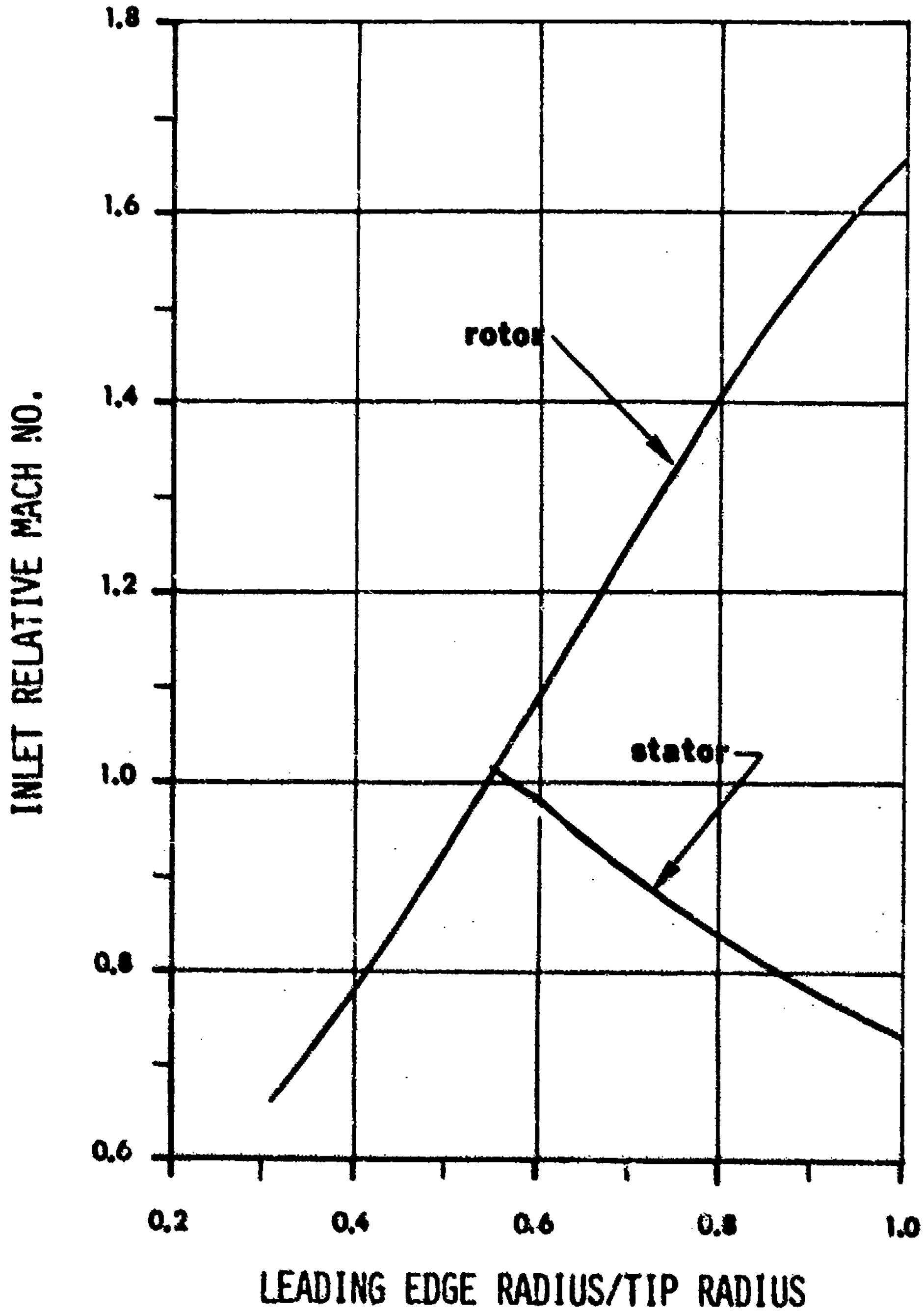

FIGURE 18. ROTOR AND STATOR RELATIVE INLET MACH NUMBER DISTRIBUTIONS

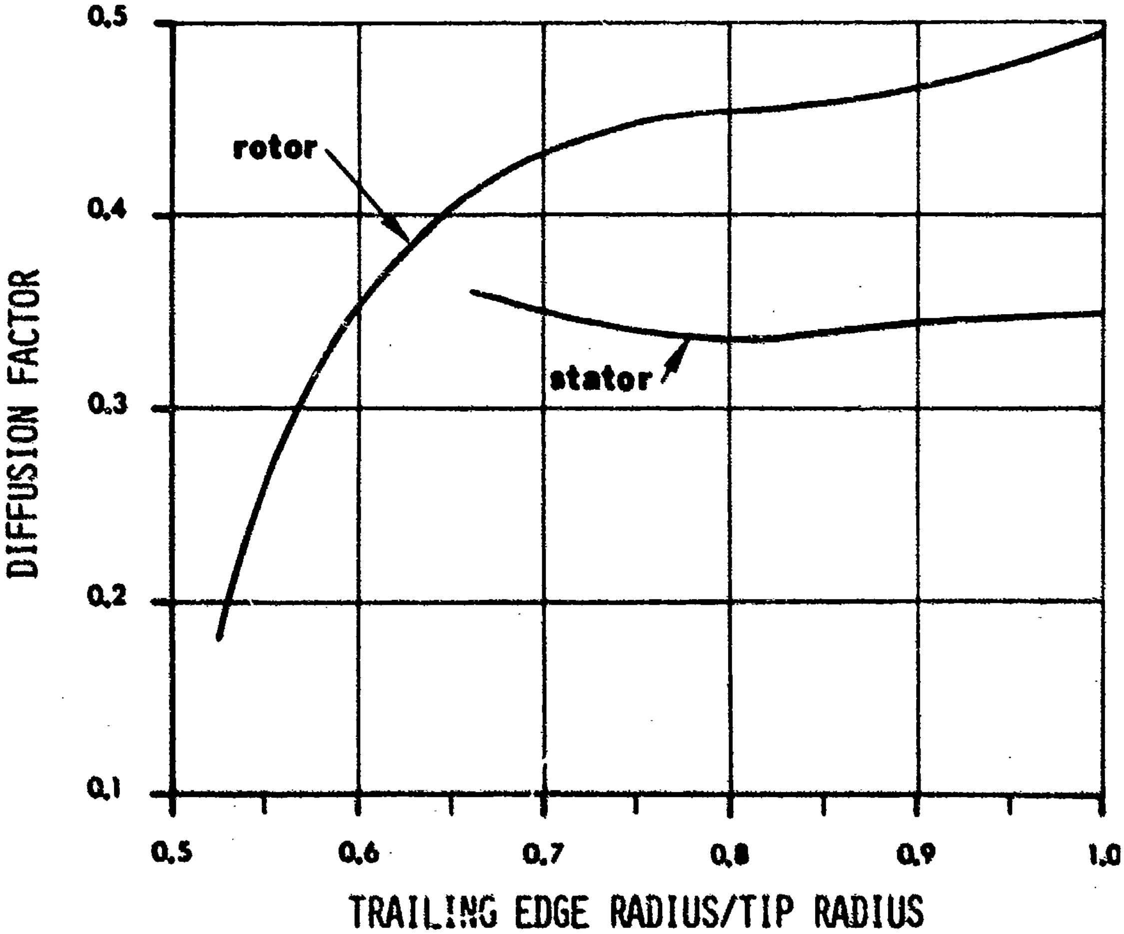

FIGURE 19. ROTOR AND STATOR DIFFUSION FACTOR DISTRIBUTIONS

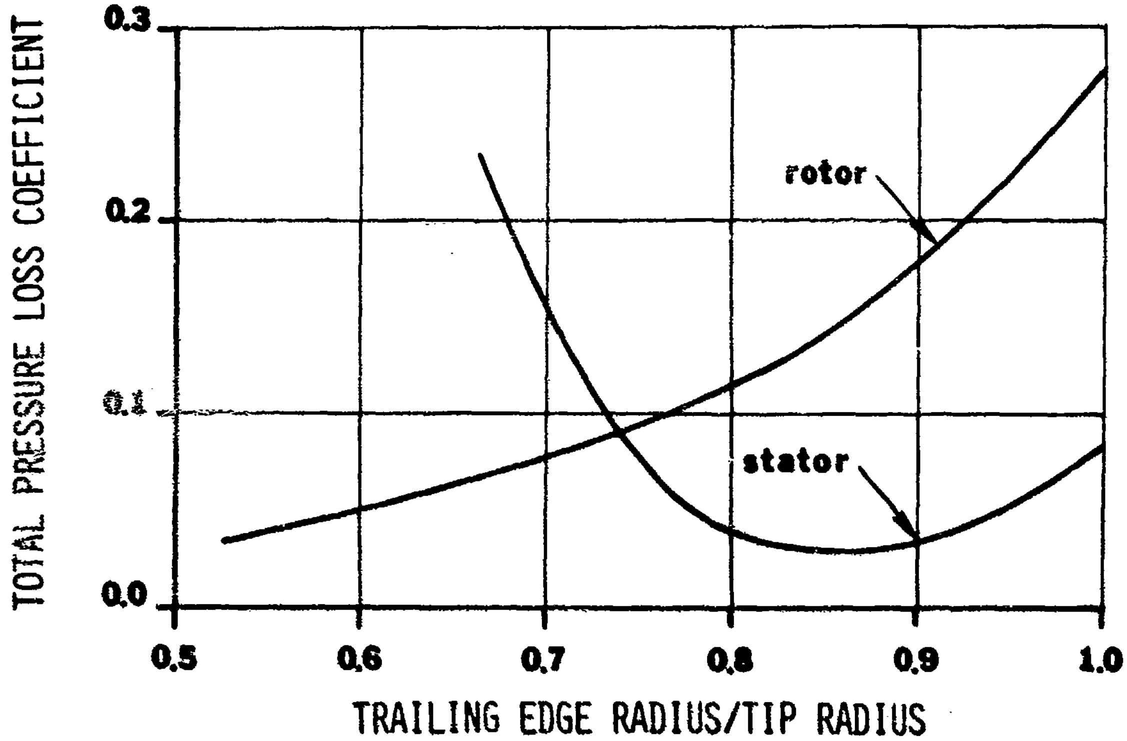

FIGURE 20. ROTOR AND STATOR TOTAL PRESSURE LOSS COEFFICIENT DISTRIBUTIONS

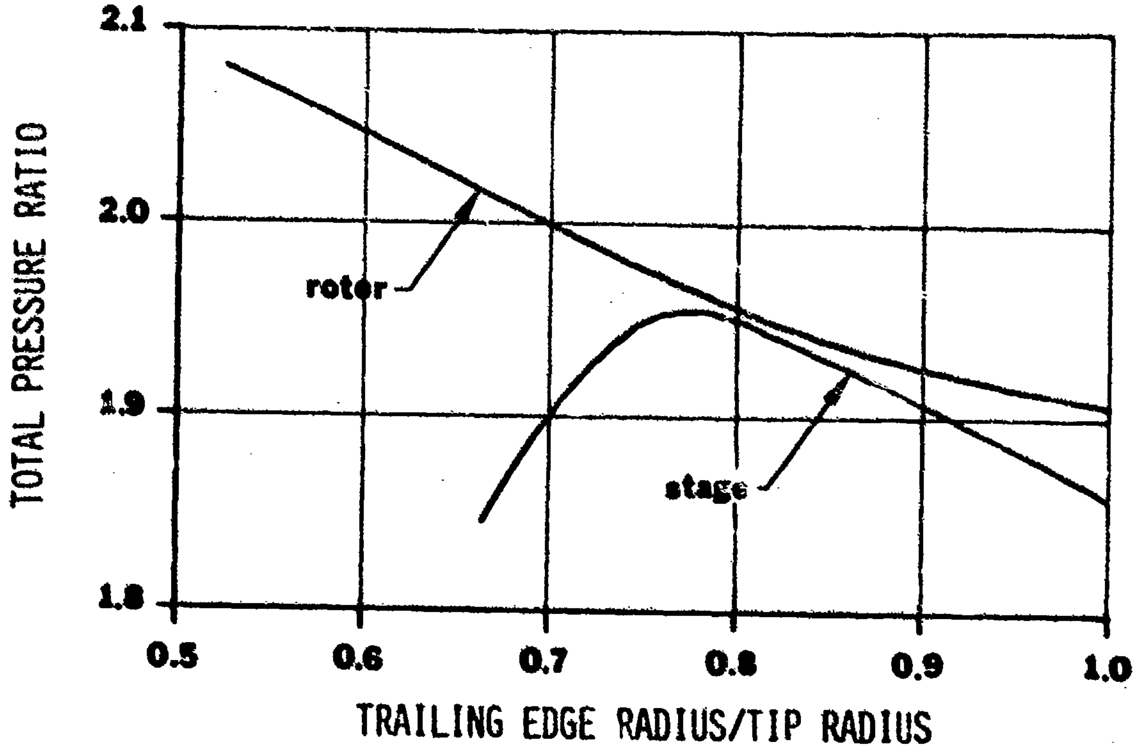

FIGURE 21. ROTOR AND STAGE EXIT TOTAL PRESSURE RATIO DISTRIBUTIONS

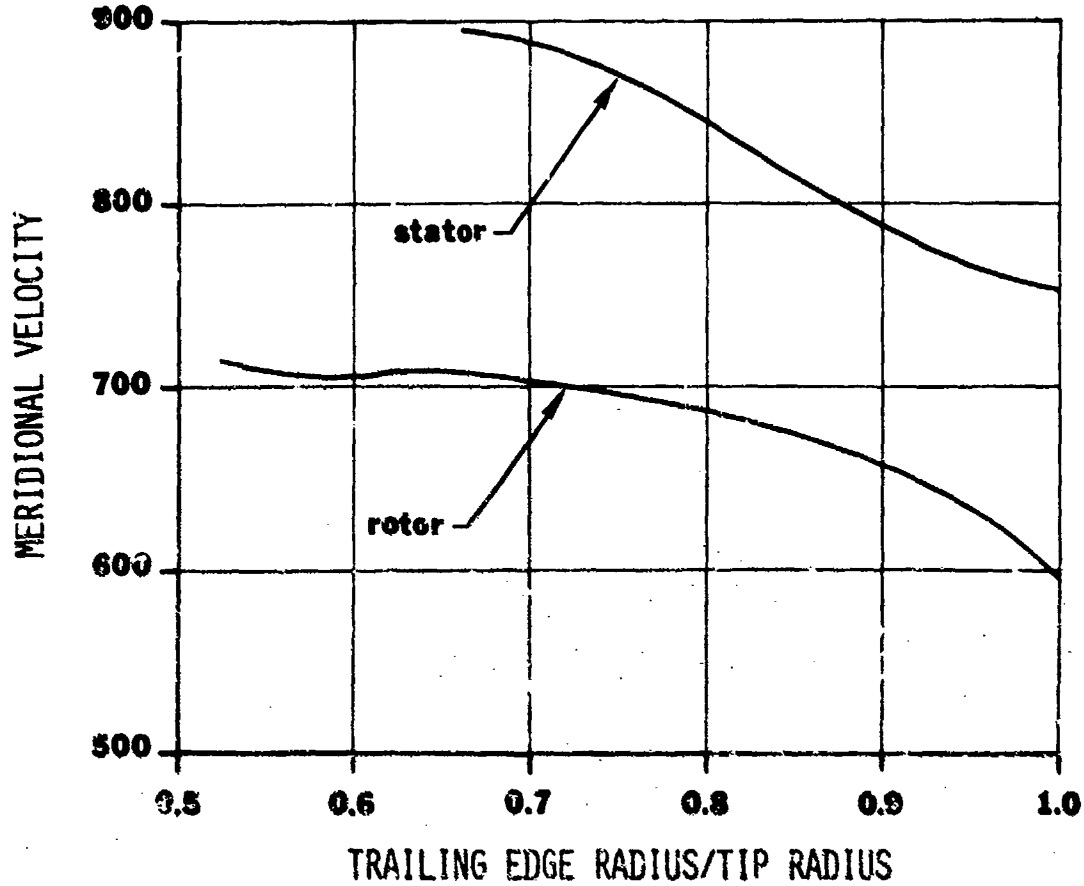

FIGURE 22. ROTOR AND STAGE EXIT MERIDIONAL VELOCITY DISTRIBUTIONS

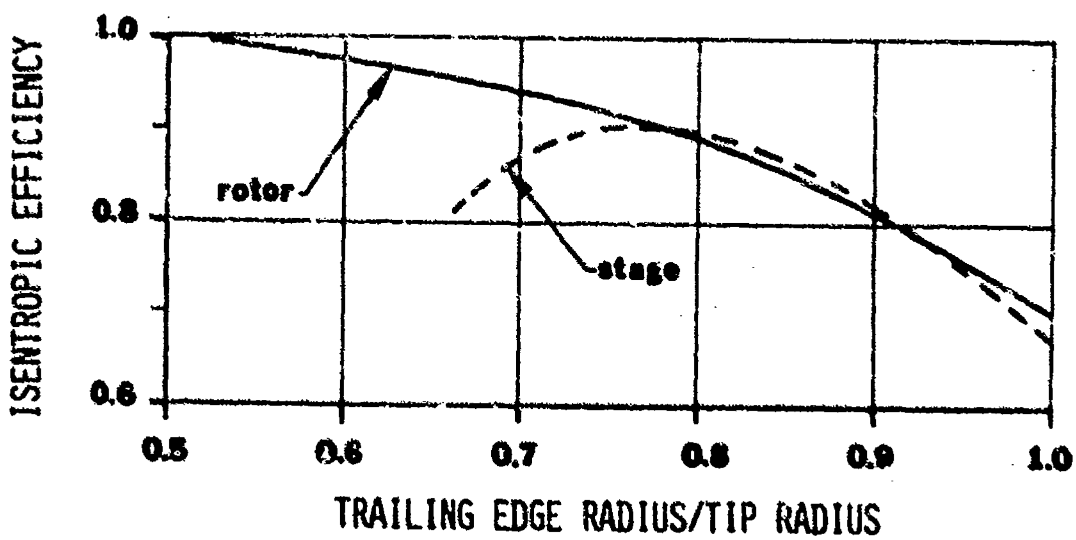

FIGURE 23. ROTOR AND STAGE EXIT ISENTROPIC EFFICIENCY DISTRIBUTIONS

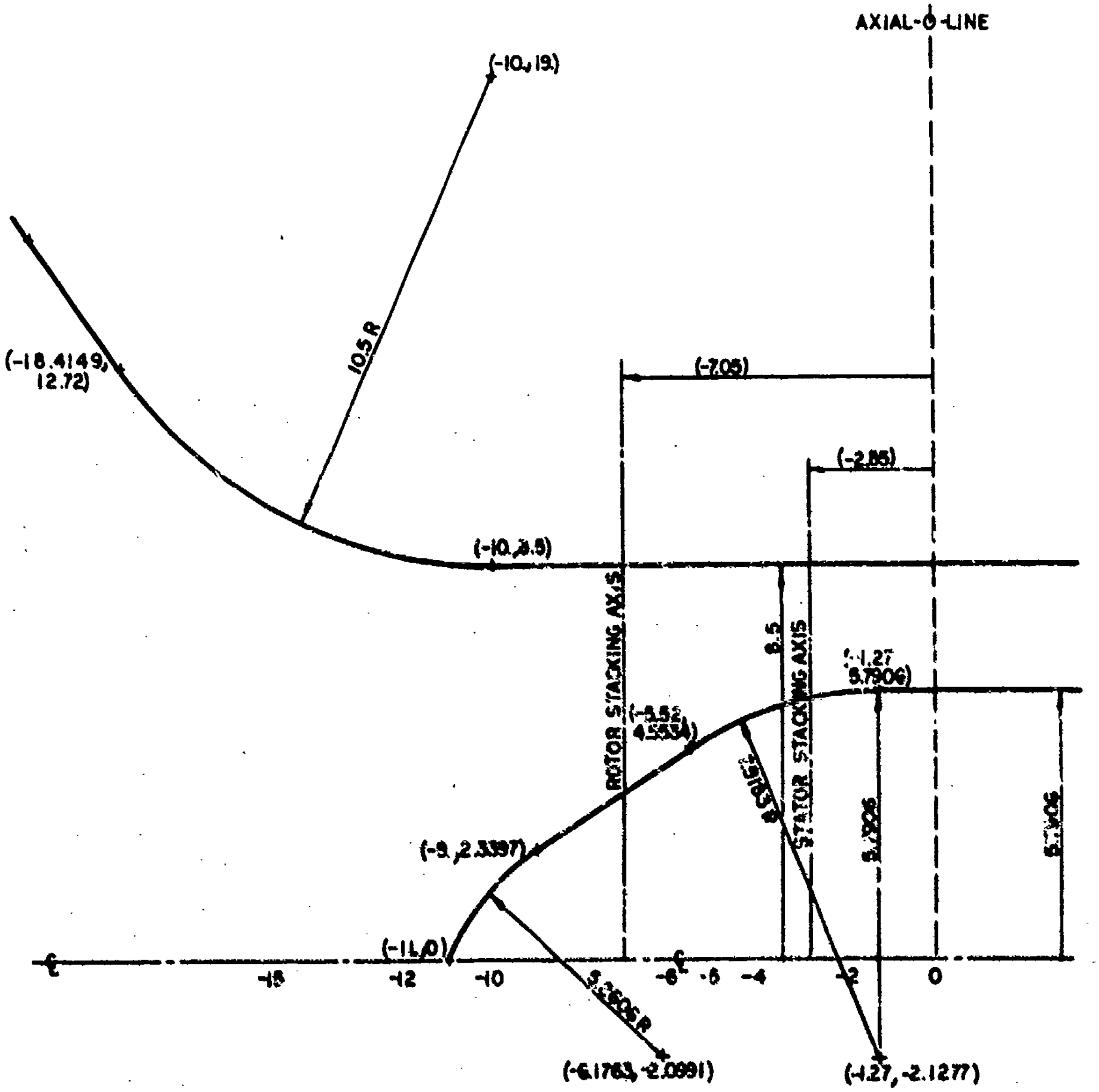

FIGURE 24. STAGE ANNULUS GEOMETRY

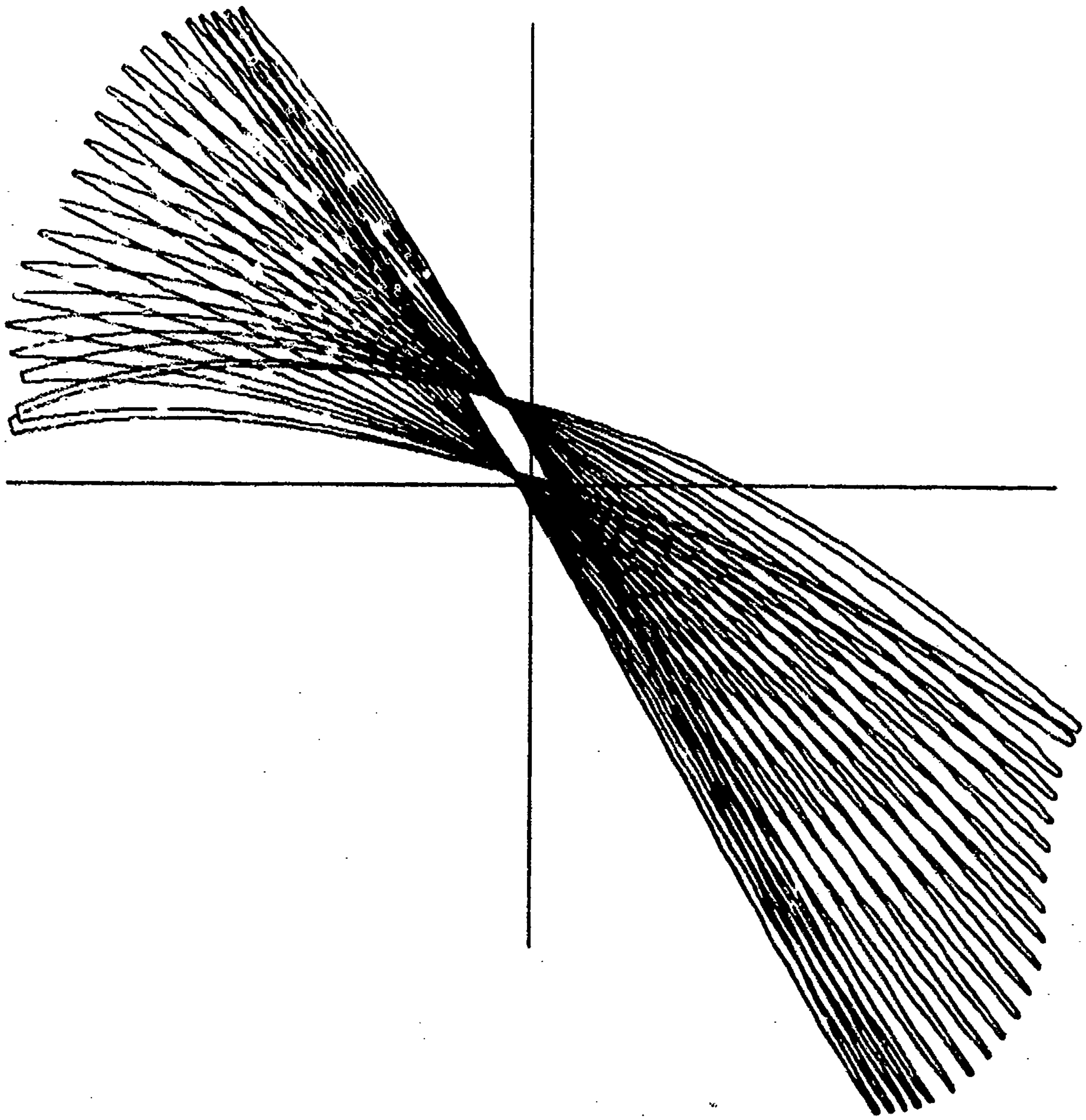

FIGURE 25. STACKED ROTOR STREAMSURFACE SECTIONS

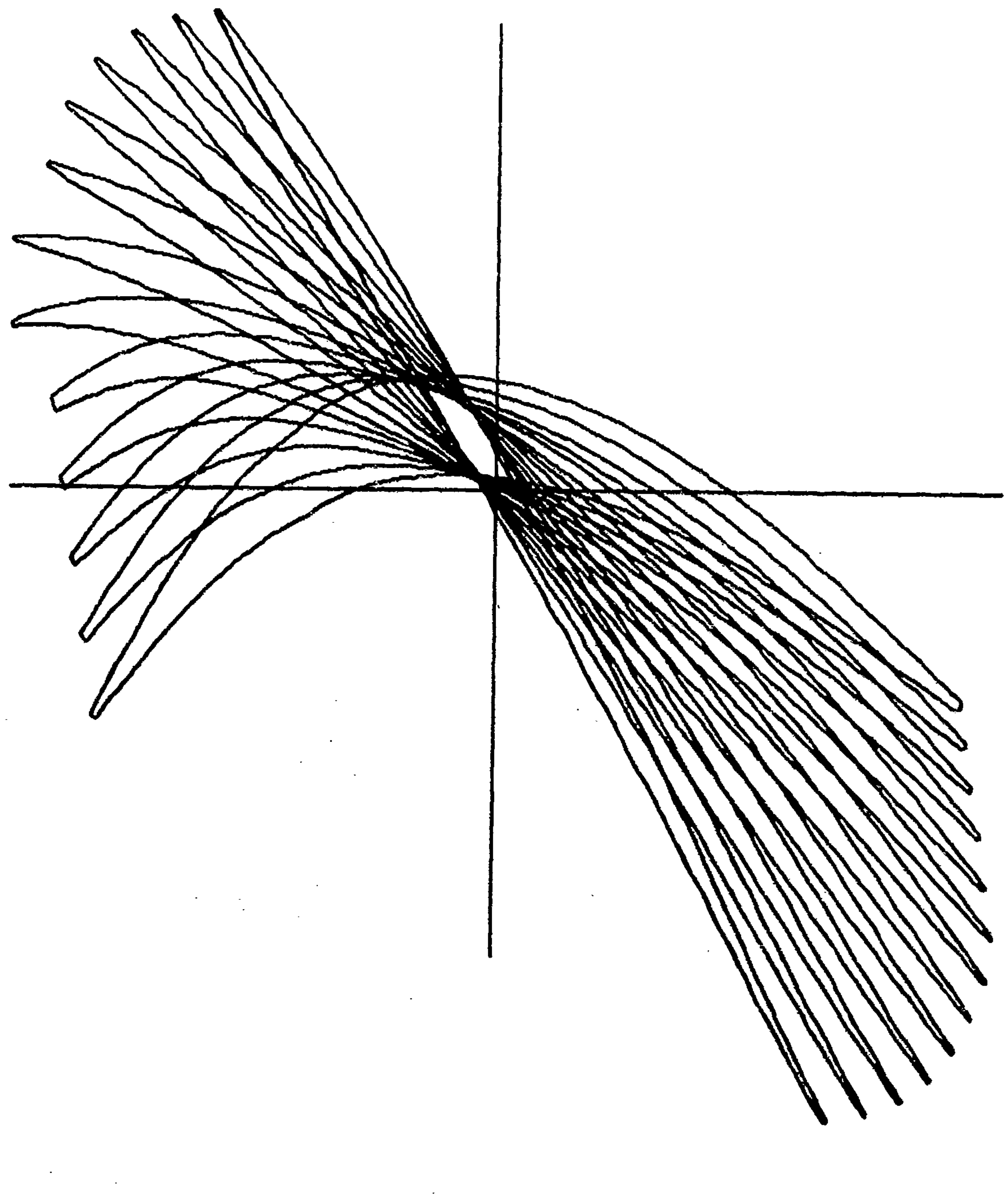

FIGURE 26. STACKED ROTOR CARTESIAN SECTIONS

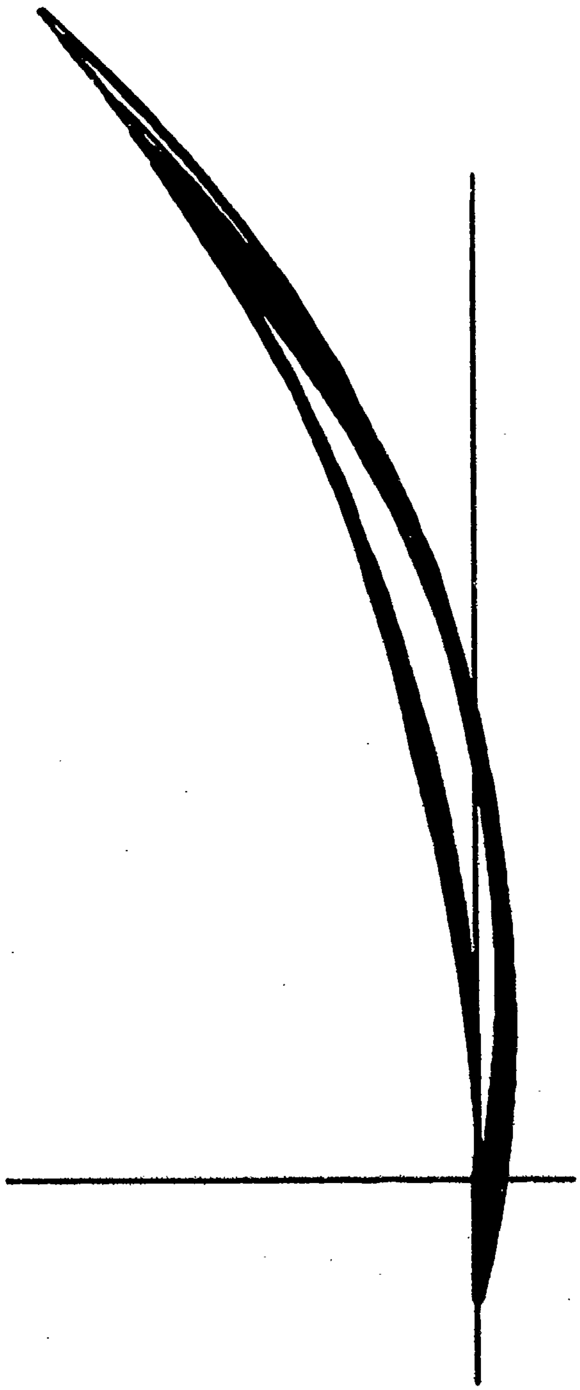

FIGURE 27. STACKED STATOR STREAMSURFACE SECTIONS

FIGURE 28. STACKED STATOR CARTESIAN SECTIONS

REFERENCES

1. Creveling, H.F. and Carmody, R.H., "Axial Flow Compressor Design Computer Programs Incorporating Full Radial Equilibrium, Part II-Radial Distribution of Total Pressure and Flow Path or Axial Velocity Ratio Specified (Program III)," NASA CR-54531, Department of Commerce Clearinghouse N68-38057, National Aeronautics and Space Administration, Lewis Research Center, June 1968.

2. Miller, G.R., Lewis, G.W., and Hartmann, M.J., "Shock Losses in Transonic Compressor Blade Rows," Transactions of the American Society of Mechanical Engineers, Vol. 83, Series A, No. 3, pp. 235-242, July 1961.

3. Monsarrat, N.T., Keenan, M.J., and Tramm, P.C. "Design Report, Single-Stage Evaluation of Highly-Loaded, High-Mach-Number Compressor Stages," NASA CR-72562, National Aeronautics and Space Administration, Lewis Research Center, July 1969.

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5. Wennerstrom, A.J., "On the Treatment of Body Forces in the Radial Equilibrium Equation of Turbomachinery," Traupel-Festschrift, Juris-Verlag, Zurich, 1974, pp. 351-367.

6. Jansen, W., "The Application of End-Wall Boundary Layer Effects in the Performance Analyses of Axial Compressors," ASME 67-WA/GT-11, The American Society of Mechanical Engineers, 1967.

7. Frost, George R. and Wennerstrom, Arthur J., "The Design of Axial Compressor Airfoils using Arbitrary Camber Lines," Aerospace Research Laboratories, Wright-Patterson Air Force Base, Ohio, ARL TR 73-0107, AD756165, July 1973.

8. Johnson, I.A., Bullock, R.O. et al., "Aerodynamic Design of Axial Flow Compressors," NASA Lewis Research Center, Cleveland, Ohio, NASA SP-36, 1965.

9. Frost, George R., Hearsey, Richard M. and Wennerstrom, Arthur J., "A Computer Program for the Specification of Axial Compressor Airfoils," Aerospace Research Laboratories, Wright-Patterson Air Force Base, Ohio, ARL TR 72-0171, AD756879, December 1972.

APPENDIX A

COMPUTER PROGRAM MODIFICATION FOR SUPERSONIC EXPANSION ANGLE

One modification was incorporated into the computer program described in Reference 1. This modification allowed the user to specify the supersonic expansion angle directly, in lieu of specifying the relative flow angle at the shock. This option proved much easier to employ than the origianl options when neither the relative flow angles nor the cambers were known to within three or four degrees.

The following card replacements are required:

Change 1: Subprogram LOSS, Card LOSE 2223
Replacement:

```
25 FRDEL(L,J) = AA/RADIAN
```

Change 2: Subprogram LOSS, Card LOSE 2224
Replacement:

```
     FRDEL(L+1,J) = BB/RADIAN
```

Change 3: Subprogram OUTPUT, Three continuation cards in format statement 51 (after .JT. 2987)
Replacement:

```
X 8HPRESSURE  3X 16H  DELTA B, IN - 3X 8H SOLIDITY 23X
                                 5H WHIRL 5X
X16H  DELTA B, IN - 3X 8HSOLIDITY/11X 7PROFILE 4X
X16H  LET TO SHOCK   33X 8HVELOCITY 3X 16H LET TO SHOCK//)
```

This option is triggered by the integer 4 in columns 21-25 of Data Card number 5. Suitable descriptive corrections concerning this option should be entered on pages D-3 (under heading "Col. 21-25") and D-10 (under "Card Type 20").

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